JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

Vol. LXXVII Part 3

MARCH 1952

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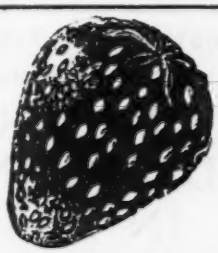

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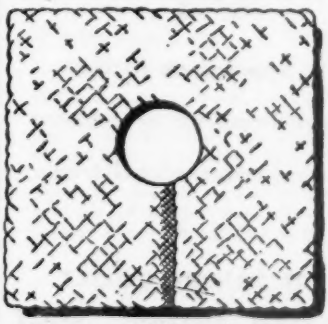

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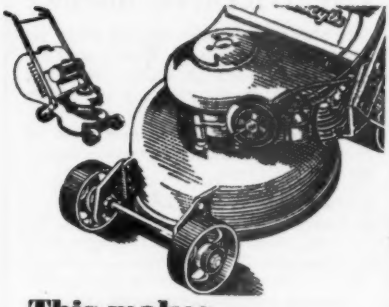

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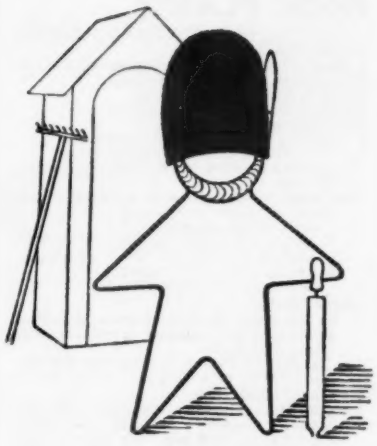

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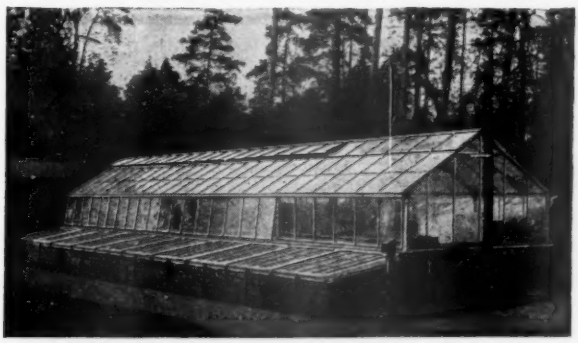

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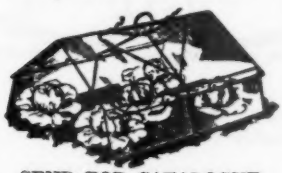

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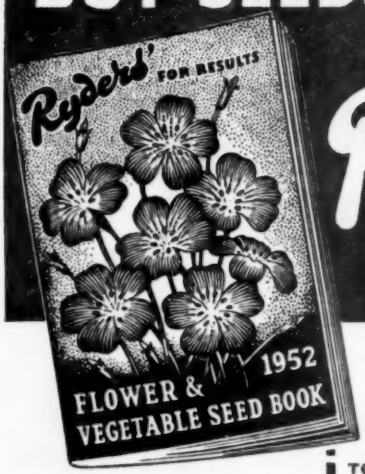

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Extracts from
THE PROCEEDINGS OF
THE ROYAL HORTICULTURAL SOCIETY

NOVEMBER 6, 1951

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. SECRETT, C.B.E., F.L.S., V.M.H., in the Chair, and fourteen other members present.

Awards Recommended:

Silver-gilt Hogg Medal

To Howard H. Crane, Esq., Highmead, Cheney Lane, Eastcote, Pinner, Middlesex, for a Group of Apples.

Selected for Observation at the National Fruit Trials, Wisley

Pear Seedling from Messrs. The Barnham Nurseries Ltd., Barnham, Sussex.
Pear Seedling No. 13 from The Director, The John Innes Horticultural Institution, Bayfordbury, Hertford.

Other Exhibits

Group of Mushrooms from Mr. J. Gardner, Riddings Cottage, Harestone Hill, Caterham, Surrey.
Apple (considered to be 'Peasgood Nonsuch') from Mrs. C. Munday, 18 Normandy Lane, Angmering-on-Sea, Sussex.
Apple Seedling from Miss G. R. Vinson, Stanway, S. Farnborough, Hants.
Apple Seedling from J. Keyse, Esq., New Mills, Clehonger, Hereford.
Apple Seedling from A. Oliver, Esq., 37 The Drive, Napsbury, nr. St. Albans.
Apple Seedling from Mrs. E. Whitaker, 146 Deans Lane, Edgware, Middlesex.
Pear 'Doyenné du Comice' from The Director, The National Fruit Trials, Wisley.

FLORAL COMMITTEE A—Mr. W. AUSTIN in the Chair, and eighteen other members present.

Awards Recommended:

Silver-gilt Flora Medal

To Messrs. Allwood Bros., Ltd., Haywards Heath, for an exhibit of Carnations.
To Mr. Steven Bailey, Sway, for an exhibit of Carnations.
To Messrs. Basingstoke Joint Nurseries, Ltd., Basingstoke, for an exhibit of Carnations.

Silver-gilt Banksian Medal

To Messrs. C. Engelmann, Ltd., Saffron Walden, for an exhibit of Carnations.
To Queenswood School (gardener, Mr. G. H. Symonds), Hatfield, for an exhibit of Begonias.
To Messrs A. G. Vinten, Ltd., Balcombe, for an exhibit of Chrysanthemums.

Silver Flora Medal

To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Chrysanthemums.
To Messrs. Blackmore & Langdon, Bath, for an exhibit of Cyclamens.
To the Borough of Malden and Coombe, for an exhibit of Chrysanthemums.

Flora Medal

To Mr. R. J. Morton, Sunbury-on-Thames, for an exhibit of Carnations grown in sand.
To Messrs. Wells, Ltd., Merstham, for an exhibit of Chrysanthemums.

Banksian Medal

To Messrs. Mortlock Bros., Langley, for an exhibit of Pelargoniums.
To Messrs. the Orpington Nurseries, Orpington, for an exhibit of Korean Chrysanthemums.

Other Exhibits

Carnations from Mr. Th. C. Nieuwenhuizen, Aalsmeer, Holland.
Carnations from Mr. M. C. Van Staaveren, Aalsmeer, Holland.
Korean Chrysanthemums from Messrs. H. G. & P. M. Lyall, Watford.

FLORAL COMMITTEE B—The Hon. LEWIS PALMER in the Chair, and eleven other members present.

Awards Recommended:

Silver Flora Medal

To Messrs. Hillier & Sons, Winchester, for an exhibit of flowering, berried and foliage shrubs
To Messrs. Worfield Gardens, Bridgnorth, for an exhibit of succulents.

Silver Banksian Medal

To Mr. Frederick Street, Woking, for an exhibit of conifers and other shrubs.

Flora Medal

To Messrs. Burkwood & Skipwith, Ltd., Kingston-on-Thames, for an exhibit of berried and foliage shrubs.
To Mr. C. Newberry, Knebworth, for an exhibit of Anemones and Gentians.

Banksian Medal

To Messrs. Kew Topiary Nurseries, Ltd., Richmond, for an exhibit of clipped trees.

Other Exhibit

Liriope Muscari variegata, exhibited by Mr. C. J. Howlett, The Yews, Earley, Reading.

ORCHID COMMITTEE—Mr. GURNEY WILSON, F.L.S., V.M.H., in the Chair, and twelve other members present.

Awards Recommended:

Silver Flora Medal

To Messrs. Stuart Low Co. Ltd., Jarvis Brook, Sussex, for an exhibit of Orchids.

Award of Merit

To *Dendrobium* 'Louis Bleriot' var. 'Aalsmeer' (*D. Schroederianum* × *D. superbiens*), (votes unanimous), exhibited by G. A. de Jong, Rikswijk, Holland.
To *Laeliocattleya* 'Chorley' var. 'Winter Charm' (*Lc.* 'Holt' × *Lc.* 'Hadlow'), (votes 8 for, 0 against), exhibited by Messrs. Stuart Low Co. Ltd., Jarvis Brook, Sussex.
To *Sophrolaeliocattleya* 'Autumn Queen' (*Slc.* 'Anzac' × *Cattleya* 'Burnham'), (votes unanimous), exhibited by R. Strauss, Esq., Stonehurst, Sussex.

JOINT PERPETUAL-FLOWERING CARNATION COMMITTEE—Mr. C. J. HORWOOD in the Chair, and twelve other members present.

Awards Recommended:

Certificate of Preliminary Commendation

To *Carnation* 'Helena Allwood,' raised and shown by Messrs. Allwood Bros., Ltd., Wivelsfield Nurseries, Haywards Heath.
To *Carnation* 'Charles Allwood,' raised and shown by Messrs. Allwood Bros., Ltd.

Varieties to be seen again

The Committee expressed a desire to see the following varieties at a future meeting:
'Bailey's Apricot,' raised and shown by Mr. Steven Bailey, Eden Nurseries, Sway.
'Bailey's Masterpiece,' raised and shown by Mr. Steven Bailey.
Seedling 'J.12.I,' raised and shown by Messrs. Allwood Bros., Ltd.
'Maud Martineau,' raised and shown by Major H. M. Martineau, The Philberts, Holyport, Maidenhead.

Other Exhibit

Carnation 'Danesmead Charm,' exhibited by Mr. F. Hicks, Danesmead, Golden Hill, Hordle, Hants.

JOINT ROCK GARDEN PLANT COMMITTEE—Colonel F. C. STERN, O.B.E., M.C., F.L.S., V.M.H., in the Chair, and six other members present.

Award Recommended:

Award of Merit

To *Pratia Treadwellii* as a hardy flowering plant for the alpine house and rock garden, from The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Other Exhibit

Tracheliopsis tubulosa which was referred to the Scientific Committee, from Messrs. W. E. Th. Ingwersen, Birch Farm Hardy Plant Nursery, Gravetye, East Grinstead, Sussex.

NOVEMBER 20, 1951

SCIENTIFIC COMMITTEE—Mr. E. A. BOWLES, M.A., F.L.S., F.R.E.S., V.M.H., in the Chair, and ten other members present.

Plants Shown—Col. F. C. Stern showed a flower of a white Corbularia Narcissus raised by Mr. Blanchard from *N. Bulbocodium* ssp. *monophyllus* var. *foliosus* (male) × *N. Bulbocodium* ssp. *Romieuxii* (female); he also showed a flower of *N. Bulbocodium* ssp. *Romieuxii* var. *rifanus* raised from seed collected in Morocco. 'Butts variety' of

THE LATE KING GEORGE VI
WITH HER MAJESTY QUEEN ELIZABETH
at the Chelsea Flower Show, 1951, with MR. E. H. SAVILL, C.B.E., C.V.O., M.C.,
inspecting the exhibit from Windsor Great Park.

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

Vol. LXXVII Part 3

March 1952

KING GEORGE VI—PATRON

The Royal Horticultural Society has incurred a heavy loss by the death of His Majesty King George VI, who became its patron in 1936. The Society is proud of the fact that it has enjoyed the patronage of the Sovereign continuously since the reign of George III, but none of His Majesty's royal predecessors took such a personal interest in gardening and the Society's activities or had so extensive a knowledge of plants. His many visits with Her Majesty Queen Elizabeth to Chelsea and to our other Shows and the unfailing interest he displayed in the exhibits will remain a lasting memory to exhibitors and Fellows alike. It was a source of special pleasure to the Council when it learned that, as soon as His Majesty was able to get about after the operation on his leg, he and his gracious Consort had spent a happy afternoon in the Society's gardens at Wisley.

In his own garden at Royal Lodge he planted many choice trees and shrubs and when in 1950 members of the Rhododendron Group went to see the Rhododendrons in Windsor Great Park, he not only invited the party to see his garden but, together with the Queen, met its members on their arrival and showed them round, pointing out the best plants and explaining the improvements he had made. This rare privilege will never be forgotten by all those who were fortunate enough to be there.

By gracious permission of His Majesty, an account of the plantings in the Windsor Great Park was published in the Rhododendron Year Book of 1950 and a colour photograph taken in the gardens of the Royal Lodge was used as a frontispiece to the Rhododendron Year Book of 1951–52.

In his passing the whole Society will feel the loss of a very kindly friend to Horticulture as well as an enthusiastic and knowledgeable gardener.

At a meeting of the Council on February 12, 1952, it was resolved to send an address to Her Most Excellent Majesty Queen Elizabeth II. It was likewise resolved to send addresses to Her Most Excellent Majesty the Queen Mother, Her Most Excellent Majesty Queen Mary and to Her Royal Highness The Princess Royal, whom we are proud to number among our patrons. A wreath was also sent to His Late Majesty's funeral on behalf of the President, the Council and Fellows of the Society.

The addresses were as follows:

"To Her Most Excellent Majesty Queen Elizabeth II.

May it please Your Majesty—

We, Your Majesty's most dutiful and loyal subjects, the President and Council of The Royal Horticultural Society, humbly beg leave, on behalf of ourselves and Fellows, to offer our deepest and most heartfelt sympathy in the grievous loss which has overtaken Your Majesty in the death of Your well-beloved Father, our late Sovereign Lord King George VI, Patron of our Society.

His Majesty had for very many years evinced a keen interest in Horticulture and in the activities of our Society, honouring us many times with visits to our Shows and to Wisley. We shall never forget his gracious patronage.

We feel, in common with all his other subjects, that his death has been an irreparable loss to everyone throughout the British Commonwealth of Nations.

While thus expressing our grief, we humbly beg at the same time to tender to Your Majesty our loyal homage upon Your Majesty's accession to the Throne of Your Ancestors.

That Your Majesty's reign may be happy and prosperous and renew the glories of Elizabethan England is the sincere wish and ardent prayer of us your loyal subjects.

Signed on behalf of the Council and Fellows:

ABERCONWAY,
President."

"To Her Most Excellent Majesty Queen Elizabeth.

May it please Your Majesty—

We, Your Majesty's loyal, attached and dutiful servants, the President and Council of The Royal Horticultural Society, humbly approach Your Majesty, on behalf of ourselves and the Fellows of the Society, to convey to you our very deep sorrow at the grievous loss which Your Majesty has suffered in the death of our beloved Sovereign King George VI, our honoured Patron. We are deeply appreciative of the keen interest which Your Majesties both took in the activities of our Society and the frequent visits both to Chelsea and to our Halls with which Your Majesties have honoured us.

We desire humbly to express our deepest sympathy with Your Majesty in your great sorrow.

Signed on behalf of the Council and Fellows:

ABERCONWAY,
President."

"To Her Most Excellent Majesty Queen Mary.

May it please Your Majesty—

We, Your Majesty's loyal, attached and dutiful servants, the President and Council of The Royal Horticultural Society, humbly approach Your Majesty on behalf of ourselves and the Fellows of the Society with the expression of our deep sorrow at the grievous loss which has overtaken Your Majesty in the death of your Son, our beloved King George VI, our honoured Patron.

We desire humbly to express our deepest sympathy with Your Majesty in your great sorrow.

Signed on behalf of the Council and Fellows:

ABERCONWAY,
President."

"To Her Royal Highness The Princess Royal.

Madam,

I have the honour, on behalf of the Council and Fellows of The Royal Horticultural Society, with my humble duty to extend to you our sincere condolences on the sad loss of your Brother, our most gracious King George VI, Patron of the Society.

We desire humbly to express our deepest sympathy with Your Royal Higness in your deep sorrow.

Signed on behalf of the Council and Fellows:

ABERCONWAY,
President."

THE SECRETARY'S PAGE

ANNOUNCEMENTS—MARCH AND APRIL

Shows

TUESDAY, March 11 12 NOON to 6 P.M. WEDNESDAY, March 12 10 A.M. to 5 P.M.	Fortnightly Show. British Orchid Growers' Association's Show.
TUESDAY, March 25 12 NOON to 6 P.M. WEDNESDAY, March 26 10 A.M. to 5 P.M.	Fortnightly Show. Daffodil Competition. Camellia Competition.
TUESDAY, April 8 12 NOON to 6 P.M. WEDNESDAY, April 9 10 A.M. to 5 P.M.	Fortnightly Show. Sewell Medal Alpine-house and Rock-garden Plant Competition for Horticultural Traders.
THURSDAY, April 17 12.30 P.M. to 6 P.M. FRIDAY, April 18 10 A.M. to 5 P.M.	Daffodil Show.
TUESDAY, April 22 12 NOON to 6 P.M. WEDNESDAY, April 23 10 A.M. to 5 P.M.	Fortnightly Show. Alpine Garden Society's Show.
TUESDAY, April 29 12 NOON to 6 P.M. WEDNESDAY April 30 10 A.M. to 5 P.M.	Rhododendron Show. National Auricula and Primula Society's Competition (April 30 only).

Lectures

TUESDAY, March 11 at 3 P.M. "Plants for the Small Conservatory" by MR. F. G. PRESTON, M.A., V.M.H.

TUESDAY, March 25 at 3 P.M. "Daffodils growing in the Wild" by MR. C. F. COLEMAN.

TUESDAY, April 8 at 3 P.M. "Flower Arrangement" by MRS. CONSTANCE SPRY.

TUESDAY, April 22 at 3 P.M. "Daphnes" by DR. A. M. AMSLER, V.M.H.

TUESDAY, April 29 at 3 P.M. "Garden Paths and Hedges" by MR. A. G. HELLYER.

Demonstrations at Wisley—The following demonstrations will be given at Wisley, that on the second day being in each case a repetition of that given on the first.

Flower Garden

March 5–6. Pruning of Roses. (Commencing at 2 P.M.)

March 12–13. Seed Sowing and Vegetative Propagation of Alpines. (Commencing at 2 P.M.)

Fruit Garden

March 19–20. Pests and Diseases of Fruit Trees; recognition and methods of control. (Commencing at 2 P.M.)

The Botanical Magazine.—*Plants required to complete plates.* Amongst the coloured plates prepared for publication in the *Botanical Magazine* but not yet used there are some which are incomplete because it has not been possible to obtain the material necessary for the artist to finish the plate with a proper representation of the species illustrated. For five of these, attempts to locate, in British gardens, the plants needed have so far failed. The plants of which specimens are needed and the nature of the material required are:

Clematis marata. Flowers from a female plant and fruit.
Eurya japonica. Specimen with male flowers.
Lindera praecox. Specimen with female flowers.
Prunus calophylla. Flowering material. A fruiting specimen was figured from a plant grown at Kew but this died before flowering specimens were supplied.
Salix Fargesii. Specimen with male catkins.

If any Fellow has one or more of these species growing in his garden and is likely to be able to provide the required material, the Editor would be very glad to know. Letters and specimens should be sent to:

Dr. W. B. TURRILL,
The Herbarium,
Royal Botanic Gardens,
Kew, Richmond, Surrey,

and marked—For *Botanical Magazine.*

Journal and Botanical Magazine Binding.—Arrangements have now been made for those Fellows who so wish to have the JOURNAL bound in green cloth with the lettering and crest in gold. The cost for each volume of 12 parts will be 9*s.* 6*d.* plus 1*s.* for return packing and postage. Fellows may also have the *Botanical Magazine* bound in dark blue buckram with gold lettering. The cost for each volume will be 13*s.* 6*d.* plus 1*s.* for return postage and packing. Parts for binding should be sent, with remittance, to Messrs. Mansell (Bookbinders) Ltd., 31–34 Cursitor Street, Chancery Lane, E.C. 4. The parts should *not* be sent to the Offices of the Society. Inquiries for binding in special styles should also be addressed direct to Messrs. Mansell.

WISLEY IN MARCH

WITH the arrival of spring all parts of the Gardens at Wisley are brightened by the flowers of bulbous plants, in particular by the first Daffodils, and by early-flowering shrubs and rock-garden plants. The Alpine House is still the most attractive place of all, and from the beginning of the month the Saxifrages will be at their best. In this large collection there is a great variety of form and colour, including many neat Kabschias in tints of rose, lilac and primrose, and the quaint

Engleria types such as *S. Grisebachii* with arching crimson spikes, the more brightly coloured 'Wisley Variety' and the smaller *S. Bornmulleri*. Primulas are also prominent, particularly the European species of the Auricula Section such as *P. Allionii* with mauve or white blooms closely set among soft green rosettes, the larger *P. spectabilis* and cool lavender *P. marginata*, *P. Palinuri* with spreading, pale green leaves and cowslip-yellow flowers, and the floriferous white-flowered *P. pubescens alba*. There will also be attractive specimens of *Jeffersonia dubia*, with pale lavender blooms among bronze foliage, *Anemone vernalis*, with opalescent buds covered with silky golden hairs, and *Heloniopsis breviscapa* with rosy, Scilla-like flowers and spreading leaves which often produce fresh little plants at their tips. Among bulbous plants there are the Spanish *Narcissus calcicola* with clustered buttercup-yellow Jonquil-like flowers on 6-inch scapes, *N. Watieri*, differing in its solitary, ivory-white blossoms and glaucous leaves, *Puschkinia scilloides alba*, *Iris bucharica* and grey-blue *I. Graeberiana*. In the beds outside varieties of the Waterlily Tulip display their glowing colours whenever the sun shines.

The number of flowers in the Rock Garden is steadily increasing, and towards the end of the month it will be very gay. The first large patches of colour are provided by the varieties of *Pulmonaria angustifolia*, particularly the bright blue 'Mawson's Variety' and the one called 'Rose Queen' as well as by *P. saccharata*, the leaves of which are blotched with silver. There are some fine clumps of *Hepatica acutiloba* in both white and purple forms. On the scree there are Saxifrages of the Burseriana type and on the edge of the alpine meadow a group of *Chionoscilla Allenii* (*Chionodoxa Luciliae* × *Scilla bifolia*). On the slopes of the meadow are myriads of tiny pale yellow Hoop-Petticoat Daffodils (*N. Bulbocodium*)—one of the prettiest features of Wisley in the spring—and extensive drifts of *Primula rosea*.

The mossy beds of the Wild Garden are dappled with a variety of bulbous plants. Chionodoxas, Crocuses and Erythroniums are plentiful here, but the most spectacular of all is *Narcissus cyclamineus*, forming wide spreading patches. The large bushes of *Pieris japonica* are, as usual, carrying a generous crop of pearl-white flowers. The N. American *P. floribunda*, with erect sprays, is quite distinct in appearance, and is represented both by the type and by the superior variety *elongata*. *P. taiwanensis* from Formosa is an equally free-flowering species, opening a week or two later and usefully prolonging the season of this lovely genus. Further specimens are also to be found flowering on Battleston Hill. Unless there is an unusually severe frost Rhododendrons will be prominent among the shrubs flowering in these parts of the Gardens. The most striking are the pale pink or rose-coloured species of the Fortunei Series, *R. Fargesii*, *R. calophytum*, *R. sutchuenense* and *R. planetum*. *R. arboreum roseum* and *R. Thomsonii* give a touch of deeper colour while on Battleston Hill especially, some of the early-flowering hybrids such as *R.* 'Portia' and *R.* 'Rosalind' will already be blooming.

Among the notable plants in the Award of Garden Merit Collection, which lies between the Azalea Garden and the Wild Garden, there is a

fine specimen of *Magnolia* × *Soulangiana* covered with upright crimson-stained cups, and to one side, trees of *Prunus subhirtella*, delightful on account of the masses of soft pink blossom with which they are decked. Unfortunately neither the Prunus nor the Magnolia has yet quite recovered from the damage inflicted by the freak snowstorm in April two years ago. *Osmanthus Delavayi* forms a well-shaped evergreen shrub with Box-like leaves and a profusion of fragrant little white flowers and *Cornus mas* and *Forsythia intermedia spectabilis* make two glowing patches of yellow against the dark background of bare branches.

Beneath the Willow trees beside the path at the east side of the Round Pond there is an interesting purple-flowered root parasite, *Lathraea Clandestina*, which has lately re-established itself, evidently from self-sown seeds, in the remoter parts of Seven Acres. In this area the yellow of the Forsythias is conspicuous at a distance, as are the clumps of Daffodils among the shrubs. The several forms of *Prunus cerasifera*, the Myrobalan Plum, Almonds, *Prunus yedoensis* and *Spiraea Thunbergii*, provide some variety of colouring, and near the pond-side the Willows are showing silvery or yellow catkins.

In the Heath Garden there is abundance of blossom on different varieties of *Erica carnea*, on *E.* × *darleyensis* and on *E. mediterranea*, of which the form *superba* is the most handsome. *E. australis* from the Iberian pensula is unlikely to be in flower before the end of the month, but is preceded by the white form, named after its collector, 'Mr. Robert.'

The Stove House is richly arrayed with Hippeastrums, Coleus, *Begonia manicata*, *Aphelandra pectinata*, and a variety of plants with ornamental foliage. Many Orchids are still in flower such as *Odontioda keighleyensis* (*Odontoglossum cirrhosum* × *Cochlioda Noezliana*) with intense crimson-scarlet flowers, the yellow *Oncidium bicallosum* and the pale amber-coloured *Coelogyne flaccida*. There are also a number of pretty Calanthes and some named varieties of Cymbidiums, including the cream-coloured 'Bodmin Moor,' pinkish 'Eaglet,' 'John Ruck' and 'James Drysdale' with pale purple blooms.

In the Temperate House the visitor will find many tender shrubs flowering. None is more striking than the Chinese *Rhododendron ciliicalyx*, covered with large, fragrant blush flowers and rosy buds. There are also plants of *R. bullatum*, of the fine hybrid 'White Wings' raised from a cross between these two species, and of *R. siderophyllum*, a free-flowering member of the Triflorum Series coming from S.W. Yunnan. Further plants of interest include *Loropetalum chinense*, *Acacia Drummondii*, *Grevillea rosmarinifolia* with quaintly curved pink blossoms, and a form of *Citrus sinensis* bearing a quantity of ripe oranges. The side staging is kept bright by Hippeastrums, Clivias, Begonias and Primulas.

THE HISTORY OF THE APPLE*

J. M. S. Potter, N.D.H.

ACCORDING to popular legend, Eve tempted Adam with an apple! Modern botanists may expect some more definite information as to the origin of our edible Pome, but no exact knowledge is available. Apples are referred to in records dating back several hundred years B.C. and in ancient writings they are much associated with folk-lore, legend and poetry. It was an apple that Paris awarded to Aphrodite, and the healing fruit of the Arabian tales was also an apple. References to the apple are also found in northern mythology, and in many a Norse legend the Golden Bird seeks the golden apples in the king's garden. Mediæval ecclesiastical writings are also rich in references to this fruit. One belief was that the Tree of Life, an Apple tree, miraculously survived the deluge and from the wood of this same tree was fashioned the true Cross.

It is impossible to say exactly where the Apple originated, but it probably spread from eastern Europe and the Middle East to the west. DE CANDOLLE considered that the extensive natural areas of wild Apples to be found in these regions supported this theory. We now know that the Apple requires a moderately long dormancy period and this requirement would be met in the west rather than towards the east with its greater extremes of climate.

Any analysis of the species which have gone into the making of the Apple as we know it to-day must be hypothetical, but pomologists are agreed that one important species must have been the *Pyrus Malus* of LINNAEUS. This species has, however, been subdivided into several species by later botanists but unfortunately there is no general agreement as to which are true species and which hybrids. Some systematists quote *Malus astracanica* Dum.-Cours. as a true species, but REHDER considers it a hybrid between *M. pumila* Mill. and *M. prunifolia* (Willd.) Borkh.—and in this paper I am accepting REHDER's classification. Probably the species contributing most to the evolution of the Apple is *M. pumila* which was included in the *Pyrus Malus* of LINNAEUS. *M. pumila* (Fig. 38) makes a medium-sized tree and the fruit is small compared with an ordinary sized dessert Apple as we know it to-day. It is widely distributed throughout south-western Siberia and Turkestan. Another parent species is *M. prunifolia* (Fig. 40), a native of north-eastern Asia, which makes a small tree producing an abundance of very bright red or yellow fruits. Lastly there is *M. sylvestris* Mill. (Fig. 37) which differs from *pumila* only in having nearly glabrous or slightly pubescent leaves. Other species including *M. baccata* (L.) Borkh. (Fig. 39), the Siberian Crab, cross freely with the cultivated Apple and likewise the purple-coloured ornamentals including *M. pumila Niedzwetzkyana* (Dieck) Schneid. Wildings or Crabs are known to have been grown in this country many centuries ago and these may also have contributed in some part to the character of our present-day Apple. There is little wonder that the origin of such an ancient plant, with so many related species, remains obscure.

* This paper was originally read to the British Association in Edinburgh in 1951.

It is generally supposed that the Romans introduced the Apple to Great Britain but there is no direct evidence that they did so, However, it is quite possible that they may have found the Crab a native, or even cultivated. CAESAR does not mention fruit, describing the Britons as being pastoral rather than agricultural. On the other hand, TACITUS in his *Life of Agricola*, while not directly mentioning any of the tree fruits implies that some were growing in this country.

> "The soil is adapted for produce of all kinds, except the Olive and Vine and other things (fruit trees) accustomed to grow in warmer countries (and is) fruitful: they are quick in coming, slow in ripening, both effects arising from the same cause, the excessive dampness of the soil and climate."

While there is no direct evidence that the Romans did bring the Apple, there is little doubt that they introduced many of the fruits to which they were accustomed. It is said that EMPEROR PROBUS allowed the Vine to be introduced into Britain in the third century. After Christianity came to this country, the cultivation of fruits was carried on mainly by the monks. Their activities were little interrupted by war or peace, and being mainly dependent on their own produce, they usually had fruit gardens attached to their monasteries. The monks were doubtless familiar with the fruit practices which had survived from the Romans and, more important, they were in contact with other ecclesiastics in Europe; consequently they were able to introduce new varieties and new practices, thereby enriching their fruit culture. One old record states that a Norwich monastery in 1340 sold apples and pears to the value of 13*s*. 4½*d*.

The period of the Tudors began another era which laid the foundation of the fruit growing industry in south-eastern England, to this day the main Apple growing district in Great Britain. The establishment of commercial fruit growing in Kent and adjoining counties was principally due to their nearness to the English Channel and the increase of communications with the Continent. Another and possibly more influential factor was the immigration of refugee Flemings, whom some authorities consider to have been the first real commercial fruiterers in England. That their success led to emulation is suggested by the following extract from *The Husbandman's Fruitful Orchard*, published in 1609:

> "One Richard Harris of London, born in Ireland, Fruiterer to King Henry the eight, fetched out of Fraunce great store of graftes especially pippins before which time there were no pippins in England. He fetched out of the Lowe countries cherrie and peare grafts of divers sorts. Then took a peese of ground in the Parrish of Tenham in Kent, being the quantity of seven score acres; whereof he made an orchard, planting therein all these foraigne grafts which orchard is and hath been from time to time the cheife mother for all those kinds of fruit in Kent and divers other places."

It is said that this orchard was the source of much of the material for planting many of the early orchards in this area and this district of Kent still remains one of the most productive of any.

It was about the sixteenth or seventeenth century that the use of varietal names became more popular, although names had probably been in use for centuries, being handed down from one generation to another by word of mouth. The term Pippin is derived from the French pepin, which in its early sense implied a tree raised direct from seed as distinct from a tree which had been raised by grafting or budding. This meaning of the term, however, became lost in time because although the original tree arose from a seed, its further propagation was vegetative. The term Reinette appears to have some association with vegetative reproduction. This word is probably derived from Renatus, which means renewed or reproduced, a reinette meaning a grafted tree and a pippin a seedling. Before this stage was reached, however, the word Kernel, which is the English equivalent of pepin, was often used, for example 'Ashmead's Kernel.' The 'Costard' may well be the oldest English variety name on record, being mentioned as far back as 1292. A few writers, including DR. JOHNSON, suggest that the name is derived from "cost" a head, but this is doubtful and I prefer DR. HOGG's suggestion that it arises from Costasus, which means costate or ribbed. The street traders of London and elsewhere probably became known as "costermongers" from this Apple because, being a much valued variety in the very early history of the Apple trade, it was in all probability the first article sold by these traders. The variety 'Pomme d'Api,' still grown in the National Fruit Trials, is probably the oldest Apple still in existence. It has been claimed that this variety was brought from Peloponnesus to Rome by APPIUS CLAUDIUS but, whether this be true or not, it is a very old variety and was probably introduced into this country by the Romans. Incidentally, a considerable quantity of fruit of this Apple under the name 'Lady Apple' was imported into this country from America about fifty years ago. I must leave this fascinating subject of old varieties and say something about Apple growing at the present time.

From Fig. 41 it will be seen that dessert Apples can be grown in all parts of England, but that the largest acreages are confined to Kent, Essex and parts of East Anglia. In these areas the rainfall is generally below 25 inches per annum, this being sufficient for tree growth and heavy crops from arable and grass orchards. The important factor, however, is that in these areas of low rainfall it is possible to control certain prevalent fungus diseases of the Apple, particularly of dessert varieties, much more easily than it would be in areas with a high rainfall. It is of course essential to supply unblemished fruit to the market in order to compete with foreign produce. Fig. 42 shows the areas where culinary Apples are grown and while these are still mainly concentrated in the South-East, it will be noted that they are grown over a wider area of the whole country than are dessert Apples. This is because it is possible by various cultural means to avoid certain of the pathological problems affecting dessert Apples, *e.g.* the average culinary Apple is more tolerant of modern fungicides than dessert varieties generally are.

Fig. 43 shows a map with belts of temperature and rainfall which have a bearing on Apple production. I don't wish to dwell at length on

this matter of climate. It is sufficient to say that under English conditions a mean maximum day temperature of at least 68° F. during July and August and 64° F. during September is necessary, while an annual rainfall of over 35 inches brings with it limitations in Apple production and at 40 inches success is uncertain.

Now for some statistics. An examination of the production figures for dessert and culinary Apples in England and Wales during the last twenty-five years reveals a steady rise in crop yields. For the ten years 1925–34 the average yield was 210,280 tons and for the ten years 1935–44, 234,250 tons. The next ten years, 1945–54, may show a substantial increase in average production; already the figures for the first five years, 1945–49, have raised the average to 382,120 tons. These figures give some idea of the size of this industry and its rapid development, particularly during this century. At first sight, such figures may seem to be foreign to my subject, the history of the Apple, but we are considering not an ephemeral plant but one which has a very long life. Furthermore, the raising of new varieties from seedling to fruiting bushes takes many years and only a very small proportion of these is ever considered worthy of further propagation. This inevitable slowness in raising new varieties, very few of which are considered worthy of further trial, has entailed a different approach to better production and heavier crops than is usual with cereals or other short-lived plants. The evolution, using the word in its broadest sense, of the Pome, has been built around research, for example pomology, plant physiology, pathology, etc., rather than plant breeding, although plant breeding is now gaining in importance. I would now like to say something about research as it has affected the cultivation of the Apple.

The father of fruit research in this country was THOMAS ANDREW KNIGHT (1759–1835). He was one of the first to put the cross-breeding of plants into practice, and he held that much better new varieties could be raised by deliberate cross pollination. He himself did a considerable amount of crossing and although not many of his apples are now grown, except for 'Yellow Ingestre,' there are still a number of varieties of other fruits of his raising in common cultivation, a well-known one being the Cherry 'Knight's Early Black.' Other workers did not follow and enlarge on KNIGHT's experiments during the nineteenth century and the early part of this century, most of the new introductions during this period being chance seedlings. Notable exceptions, however, were those introduced by those two famous fruit firms, RIVERS of Sawbridgeworth and LAXTON's of Bedford, whose founders were inspired by KNIGHT's cross-breeding work.

Little research was done on fruit until the late nineteenth century, and the condition of the industry may be gauged from the following exract from an article in *Nature* about 1895:—

> "To anyone of a scientific turn of mind the unsatisfactory basis on which the culture of fruit depends cannot fail to be apparent. Even amongst the highest practical authorities there is hardly a single point in the cultivation of fruit on which unanimity of opinion prevails."

Such were the conditions of fruit growing when PICKERING started his famous experiments at Woburn Experimental Farm in 1894. As we know now, the site of this station was unsuitable for fruit experiments, particularly for cropping, as it was subject to spring frosts, but nevertheless PICKERING obtained sufficient evidence in his experiments to show that many of the accepted practices of those times were unsound. These experiments attracted the attention of fruit-growers and a demand arose for fruit research stations. The National Fruit and Cider Institute at Long Ashton, started in 1903, was the first, and some years later it became the Agricultural and Horticultural Research Station of the University of Bristol. This station started to build up a team of research workers under PROFESSOR BARKER. About the same period the John Innes Horticultural Institution was brought into being primarily through a private bequest, and under PROFESSOR BATESON this institution started its now famous investigations into plant genetics. Up to this time the South-East of England, with its very large acreage devoted to fruit, had no fruit research station of its own. However, SIR DANIEL HALL had developed the South-Eastern Agricultural College at Wye to such an extent that the growers became convinced that a fruit station was necessary and so East Malling Research Station was born in 1912.

In Apple culture particularly, developments have been so numerous that it is only possible in the time at my disposal to speak briefly on a few of the more outstanding changes resulting from experiments carried out at these three centres. Apple cultivation has been revolutionized, and long-established practices discontinued. Fifty years ago there was little or no standardization of fruit material and one of the first tasks of the research station was to collect the large variety of Apple rootstocks, classify them and establish their effect on the growth of the tree. The generally accepted view was that seedling Crab stocks were very vigorous and that vegetatively propagated Paradise stocks produced a dwarf tree. This was substantially true of Crab stocks, but the effect of Paradise stocks was much less uniform. Study of an extensive collection of these stocks showed that some produced trees as vigorous as a strong Crab, while others when budded or grafted produced a tree which made little or no growth. This lack of uniformity in the Crab material raised from seed and in the widely differing Paradise stocks, inspired the director of East Malling Research Station, DR., now SIR RONALD HATTON, to investigate the potentialities of the numerous types and after years of careful work it was possible to clarify and stabilize the position as regards rootstocks. Those with characteristics of a type desired by the grower and nurseryman were propagated by layering and "clonal" stocks were built up, and it is this standardized material that the fruit industry employs to-day. These selected stocks were classified according to vigour, the main types being (a) very dwarfing, (b), semi-dwarfing, (c) vigorous, (d) very vigorous.

Group (*a*), *Very Dwarfing*—The principal stock in this group is Jaune de Metz (M. IX) which produces a relatively dwarf tree and comes into bearing early. Its suitability for close planting led at first to its use mainly as a filler in permanent bush plantations. It is now seen that after 25 years of cropping, trees on type IX have shown no signs of

deterioration, indicating that this rootstock is ideally suited to intensive cultivation under favourable conditions. It is a stock well suited to the needs of the amateur grower.

Group (*b*), *Semi-Dwarfing*—Of the two stocks in this group, neither is widely used at present, but one of them, M. VII, is increasing in popularity and in time is likely to be extensively used. This stock makes the ideal small bush tree and comes into bearing early. Its slowness in coming into popular favour may to some degree be the result of its relative susceptibility to *Bacterium tumefaciens* (Crown Gall), but this trouble does not seem to have any markedly harmful effect on the general health or fruitfulness of the tree. The other stock in this group is M. IV, which is propagated to a considerable extent on the Continent—often being sold as Jaune de Metz (M. IX). Although it has certain disadvantages, trees grown on it for a number of years have cropped so well and produced fruit of such good quality, that it cannot be ignored.

Group (*c*), *Vigorous*—In this class are the two stocks which have perhaps been used more widely than any others. They are the Broad-leafed English Paradise (M. I) and Doucin (M. II). These have proved to be ideal for the general run of bush trees with preference being given to M. II as M. I is rather unsatisfactory on dry soils.

Group (*d*), *Very Vigorous*—This comprises types XII and XVI which are suitable for very large trees.

The importance of this standardization cannot be over-emphasized, since by using the proper stock it is possible to secure a uniform plantation of the desired type of tree. The influence of rootstocks regulates the distance apart at which trees may be planted; the age at which the trees come into bearing; the ultimate height and type of growth and, because of the uniform habit of growth, pruning methods can be standardized instead of the requirements of each tree having to be assessed individually. Furthermore, uniform manurial treatment becomes possible. The uniformity in the plantations resulting from the use of proven rootstocks whose ability to produce the desired type of tree has been ascertained experimentally, has resulted in considerable increase of cropping and a simplicity of manipulation impossible in the old type of orchard where trees established on stocks of mixed origin resulted in an endless variety of size, shape and performance.

On the pomological side, another result of research has been to introduce considerable changes into pruning methods. The old rule-of-thumb methods have been displaced by methods evolved from carefully planned experiments. With the old variable tree, the usual practice was to prune hard to keep the tree a reasonable size and of symmetrical appearance. Much research has been carried out on the treatment of leaders, lateral and spur growth, and the effect of the different treatments on the subsequent production and disposition of flower-buds. These experiments on pruning have led to a much better understanding of its effect on growth and how, combined with cultivation and manuring, it can control growth. Excessive growth can be checked by reduction or elimination of pruning, and weak growth stimulated by more severe pruning. Pruning is of course only one way of influencing vigour—cultivation and nutrition have an even greater influence. I do not

propose to give you a practical talk on pruning, but will merely mention that whereas the old-time fruit grower aimed at producing fruit on short spurs close to the old wood, the modern objective is to have most of the crop carried on two-year-old wood.

The plant physiologist has added greatly to our knowledge by his investigations into fruit-bud formation; its relationship to sap concentration, and the very important subject of nitrogen/carbohydrate ratios. Application of these principles to cultural practice has resulted in the evolution of various methods of interfering with the translocation of plant food by such methods as ringing, notching and partial defoliation. The studies of the plant physiologist make it possible to carry out these practices at the right time with a reasonable chance of obtaining the desired modification in growth and cropping.

A dominant factor in fruit-bud formation is the climate and especially the rainfall of the preceding summer. It has been shown that an early stoppage of growth has a stimulating effect on fruit-bud formation, which is a matter of some importance in the areas of higher rainfall, as in the western districts growth tends to be excessively prolonged. Grassing down or the use of cover crops helps in this respect.

The problem of biennial cropping has also received considerable attention and the relationship between leaf area and fruit-bud formation is one of the factors which has been examined. It has been found that although the number of spur leaves in an " off " year is only about 50 per cent. greater than in an "on" year, the area of the leaves in an "off" year can be as much as 400 per cent. greater, principally owing to their increased size. These are only a few of the investigations done by the plant physiologist, all of which have had an important influence on field practices.

In the field of plant nutrition, a tremendous amount of work has been done during the past quarter of a century. I cannot hope to do more than mention a few outstanding features which have influenced cultural practices.

As I have already indicated, most of the accepted practices in Apple culture were empirical, if not haphazard. Manuring was no exception. Until about twenty years ago, any experiments on the manuring of Apples were of little value outside the field on which they were carried out, and indeed it was a common experience for the results of one experiment to be completely at variance with another on similar lines. No accurate experiments could be made so long as soil conditions, rootstock influence and planting distances were variable. Not so many years ago, fruit-growers simply applied fertilizers annually as an insurance premium, without knowledge as to whether the composition was correct, or even if any were needed at all.

Into this chaotic field DR. T. WALLACE brought his now famous pot experiment cultures of Apples in sand. He commenced with a series of differing treatments. To one set of plants was given a complete nutrient solution, and in the case of each of the others one element was omitted, namely nitrogen, potassium, phosphorus, calcium and magnesium. A control plant received rain-water only. Careful observations were taken of the physiological and morphological reactions to these various

treatments, including the widely differing times of bud break, leaf and general growth characters, time of defoliation, and the colour, texture and quality of the fruit from trees given the different treatments. These experiments were so successful that it became possible to describe the diagnostic symptoms of most deficiencies from the early to the severe stages. This provided the foundation of modern methods of manuring to meet the requirements of the tree. Advances in plant nutrition are such now that if symptoms are not typical of a specific deficiency, a chemical or tissue test can be made and the appropriate corrective applied. The results of the pot experiments have been applied to field experiments in various parts of the country under differing soil and climatic conditions, and these have greatly advanced our knowledge of this most important treatment.

I would like for a moment to turn to general orchard practice. Forty years ago a typical Kent orchard consisted of half-standard Apples, probably planted about 20 feet apart, interplanted with Plums, with rows in between containing Gooseberries, Currants or even Nuts. When the plantation was young, the ground was kept clean by digging and hoeing. As the bush fruit matured to reasonable-sized bushes the Apples and Plums were trimmed up to form full standards and when the bushes were eventually removed the orchard was laid down to grass. As we now know, all these kinds of fruit require different manurial treatment, for example, Plums and Black Currants respond to high nitrogen, whereas Apples and Gooseberries require much more potash. Even amongst varieties of one kind of fruit, the requirements can vary considerably, 'Bramley's Seedling,' for example, requires more nitrogen than does 'Cox's Orange Pippin.' This indiscriminate planting of orchard fruits is no longer practised, and mixed orchards of different kinds are the exception now and not the rule. Likewise, orchard cultivation has considerably changed since those early days. Following the grassing down of the orchards it became the practice to run sheep or sometimes cattle in order to keep down the grass. As sheep are selective feeders, preferring the fine to the coarse grasses, these orchards in time became largely a herbage of coarse grasses which eventually robbed the trees of much of the available nitrogen. Between the two world wars, this grassing down was in many cases replaced by clean cultivation; the fashion being set to some extent by the rapid expansion of fruit-growing in the Eastern Counties where the rainfall was low, in certain areas not exceeding 20 inches per annum, the belief being that this rainfall was too low to support trees and grass. Time proved that continuous clean cultivation had a bad effect on soil structure, and as most fruit-growers were adopting mechanization at this period it meant that there was less organic matter becoming available to replace that lost through natural processes. This system of cultivation eventually led to deficiencies of various kinds, and I would like to mention the results of two such deficiencies discovered in the plantation of which I have charge and which I feel have been aggravated by the fact that we do not find it possible to supply our soil with as much organic matter as we would like.

The first of these deficiencies is zinc, the characteristic symptoms being a rosette effect with little or no lengthening of the internodes,

while the leaves are small and lanceolate. The other deficiency is copper. The first symptoms of this occur in early July when large irregular necrotic areas are formed on the terminal leaves of the current growth, and as the season advances these leaves are shed and the shoot begins to die from the tip downwards. It is possible to correct both these deficiencies, which were discovered and treated by PROFESSOR WALLACE and his staff.

Returning to the subject of orchard cultivation, experiments have been and are being carried out to ascertain the best methods of maintaining soil organic matter and thereby soil fertility. Up to the present the best method has proved to be a temporary or permanent ley which is kept short by gang mowing and the cut grass left to rot where it lies. This practice, supplemented by the judicious use of both organic and inorganic fertilizers, results in excellent yields being maintained.

Now a word on pathology and pests in relation to Apple culture. It is difficult for the uninitiated to appreciate how many diseases and pests are parasitic on the Apple. But for the discovery and general introduction of control measures, regular cropping would be impossible. Yet as recently as 1920, tar oil washes were practically unknown and the only known egg-killing wash was caustic soda—and not a very good one at that. In 1921 came the beginning of what might be called the revolution in practical spraying. It was during this year that the first tar oil wash was introduced into this country under the name "Carbokrimp." One of the first experiments was carried out in the Wisbech area, and the trees sprayed with this material carried a magnificent crop whereas the unsprayed trees produced a small crop of chats. Any doubt about the value of this kind of spraying was therefore dispelled. As for fungus diseases, it is a little difficult to realize even now that in 1920 the Apple 'Cox's Orange Pippin' was regarded as a variety suitable only for garden culture, whereas to-day it is one of the most popular commercial Apples and is being planted on an ever-increasing scale. The main reason for this was that 30 years ago copper sprays were the main type of fungicide used for the control of Scab and other diseases, and these copper sprays were very damaging to 'Cox's' and certain other sensitive varieties, so that scab control combined with a satisfactory crop was practically unobtainable. Towards the end of the twenties, lime sulphur gained in popularity and now is the principal fungicide in use. The grower now has a wide choice of materials for pest control and although the fungicidal range is not so wide, it is sufficient, and without both kinds, Apple production could not be maintained, let alone expand.

The application of these sprays, and there may be as many as ten sprays in a year, presented many problems and much has been done towards their solution during the past twenty years. The main difficulty round about 1930 was that the output of the existing pumps was too low, making spraying an expensive operation. This rapidly changed with the introduction of much larger machines with a high output. Labour costs for spraying have been gradually reduced until at the present time quite a number of growers have gone over to a large type of machine known as the auto-blast which applies the spray mechanically without the use of manpower except for the man to operate the machine itself.

Having briefly discussed the results of research applied to field conditions, I would now like to say something about the fruit. In most varieties of Apple, fruit is formed as a result of sexual fertilization, but in many varieties this is not simple, because there are several factors which can interfere with the process. One of the commonest of these is self-incompatibility, by which I mean that in certain varieties the ovaries cannot be fertilized by pollen from the flower of the same variety. Notable examples of these self-incompatible varieties are 'Cox's Orange Pippin' and 'Ribston Pippin.' Up to the beginning of this century cross-pollination did not present any problem since orchards then consisted of a mixture of many varieties, making possible effective cross-pollination. In the face of intensive foreign competition, English growers had to provide the markets with a uniform pack of standard varieties and to maintain a supply of specific varieties over several months of the year. This led to a change in planting practice and the mixed orchards were replaced by specialized plantations of one or two varieties only. The difficulty of securing adequate pollination then arose. MR. M. B. CRANE at the John Innes Horticultural Institution made remarkable discoveries that elucidated the problem. To deal with MR. CRANE'S work would involve a paper in itself. As a result of the knowledge now at his disposal, the modern grower need have no difficulty in planning his orchards with inter-fertile varieties, knowing that when they come into bearing full crops can be expected. Such was not the case 30 or 40 years ago when large acreages were occasionally planted with self-sterile varieties which never cropped well.

Later came the concept of the gene as a unit of inheritance, then the discovery that Apple varieties did not all have the same number of chromosomes, some being diploids and some triploids. The diploids have $2n = 34$ chromosomes and the triploids $3n = 51$ chromosomes. This odd number of chromosomes in the triploids prevents the orderly division of the reproductive cells and as a result triploids are usually bad pollinators. Another factor affecting pollination is the date of flowering, since all varieties do not flower at the same time. To ensure adequate cross-pollination, it is essential that adjoining varieties should be not only compatible, but that they should flower at the same period, the minimum time in which both should be in flower together being about eight days.

The subject of varieties is of perennial interest and in 1921 the National Fruit Trials were established to provide information on the characteristics of new varieties of fruit. Organized trials of cereals and other food crops had been in existence for many years and trials of fruit seemed even more necessary, having in mind that trees have a life of many years and any error made in planting could result in considerable loss. The yields of cereal and other short-lived crops can be recorded statistically after only a few years' trial but specific recommendations on the merits of an Apple could hardly be given on less than twenty years' trial. Furthermore, such characters as palatability, appearance, resistance to pests and diseases, are as important as crop yields and these factors are not amenable to statistical presentation. The practice therefore has been that varieties are tested against controls whose merits are

known, and in the course of time the more promising varieties are sent to sub-stations situated in various parts of the country for testing under a range of environmental conditions. New introductions are given official recommendation only after they have given a satisfactory performance over a number of years at both main and sub-stations. About 95 per cent. of the varieties accepted for trial do not meet the exacting standards required.

In conclusion I will just mention a few current varieties. Several of the most widely grown Apples at the present time are well over a hundred years old and were introduced by enthusiastic amateur gardeners. 'Cox's Orange Pippin' was raised by a retired brewer in 1830, 'Blenheim Orange' about 1818, 'Ribston Pippin' about 1707, and some culinary varieties are equally old. 1,600 varieties are maintained in the National Fruit Trials. Apple breeding is being carried out on scientific lines at the John Innes Horticultural Institution, East Malling and Long Ashton Research Stations, but it remains to be seen whether a scientific approach will produce anything better than the varieties selected by our forefathers from chance seedlings.

In my opening remarks, I referred to the antiquity of the Apple, but this brief survey has shown that most of the advances due to applied science have been crowded into the last thirty years. Should the next three decades show a proportional advance, it is beyond our imagination to visualize cultural practice. It would, however, not be rash to prophesy that our children and grandchildren will still be eating 'Cox's Orange Pippin.'

ANEMONE BLANDA var. INGRAMII

THE Editor has asked me to say something about this lovely deep blue flowered Anemone (Fig. 36). Sometime just after the first world war my good friend the late S. C. ATCHLEY used to send me parcels of bulbs and corms of plants he collected in his walks on the hills of Greece. Among these corms there were some *Anemone blanda*. When they flowered, some were a deep pink, some a washy white and some of the deepest blue. These were separated, the deepest blue planted in one border and the deepest pink in another border some way away. Since that time, now nearly thirty years ago, these delightful Anemones have seeded themselves and spread. The deep blue form has spread much more widely than the pink. The deep blue form is called var. *Ingramii* in MR. E. A. BOWLES'S delightful chapter on Anemones in his book *My Garden in Spring*. I have adopted this name for it as I am sure MR. BOWLES is right. This variety *Ingramii* comes nearly always true to colour from seed; sometimes there is a lighter blue form among the seedlings which is removed. The deep pink form does not behave so well; its seedlings come all shades of pink and even sometimes white, a poor white. No plant is so easy to manage in the chalky loam of this garden. The borders are top-dressed each autumn and dug over. The Anemones don't mind at all. They have filled the long border and are now invading the rest of the garden. The first flower usually shows in January but the mass of flower is at its best in the first week of March.

At the end of the border is a fine tree of the Almond, *Prunus Amygdalus Pollardii*, whose pink flowers are produced at the same time. This was brought twenty years ago from the Botanic Garden at San Remo. It is said to have originated with MR. POLLARD of Ballarat, Victoria, Australia, about 1904.

F. C. STERN

Highdown,
Goring-by-Sea.

THE WINTER SWEET

F. P. Knight, F.L.S.

THE Winter Sweet is the popular name given to the winter-flowering shrub which I have always called by the botanical name *Chimonanthus fragrans*.

Few shrubs can, however, have had so many conflicting accounts written about them, and the following facts are presented in the hope that they will provide a simple record.

First of all, the question of correct naming must be dealt with, and the following are names which have been used:

Calycanthus praecox, under which name it is described and figured in *Curtis's Botanical Magazine*, t. 466 (1800). *Meratia praecox. Meratia fragrans. Chimonanthus praecox. Butneria praecox.*

The earliest name given to this genus is Meratia, but under the International Rules of Botanical Nomenclature the generic name Chimonanthus is officially conserved in order to avoid a disadvantageous change in nomenclature. It is therefore the correct generic name. The earliest specific epithet associated with this plant is *praecox* and it therefore takes precedence as the correct name over the more commonly used *fragrans*. In the 1927 edition of his manual published *before* the last edition of the International rules REHDER used Meratia but in the 1940 edition amended this to Chimonanthus.

Because the Winter Sweet was first introduced to England from Japan in 1766, it was for a long time taken for granted that it was a native of that country. Its true native habitat is stated by WILSON to be in China—Ichang and westward to Szechwan.

There will be general agreement about the confused nomenclature, but there can be no disagreement about the value of this very fragrant flowering shrub in our gardens. MR. E. A. BOWLES in his book *My Garden in Winter*, p. 189, boldly states "*Chimonanthus fragrans* is indispensable and should be planted in any garden large enough to hold two plants." (*Iris unguicularis* being first and Chimonanthus second.)

Although usually planted against a wall facing south or west, there is no reason why it should not be given a position in the open as a natural growing shrub. I have seen several fine specimens in fully exposed conditions.

The actual time when the first flowers open may vary from year to year according to the seasons, but as a general rule this is towards the

end of November and seems to coincide with the end of leaf fall. This year (1951) I noticed the first flowers were out in the last week in November.

The colour of the flowers is rather difficult to describe, the sepals and outer petals are of a transparent pale yellowish brown shade, and the inner petals purplish. These could quite well be passed by in the winter landscape, for the real merit of the flowers is in their delightful fragrance. A few cut branches brought indoors will scent a large room.

The flowers are produced on the young wood, and the pruning of plants growing against walls should therefore be completed immediately after the flowers have faded; the object being to encourage the development of new shoots in the summer which should produce flowers during the following winter. If seeds are required for propagating new plants due care must be taken to leave sufficient of the old flowers so that seeds are developed. Sometimes seeds will persist on the plants for a year or more. There is no difficulty in raising young plants from seeds. I like to sow them in an open soil mixture in a cold frame as soon as possible after the seeds are thoroughly ripe and recently I obtained a very good germination from a fine lot of seeds which were sent to me from New Zealand. The cotyledons (seed leaves) when they first burst through the soil always remind me of beech seedlings. Unfortunately, much patience is required waiting for the young plants to reach their flowering stage, even up to ten years or more. Where an old plant exists which flowers regularly, much quicker results can be obtained by layering suitable branches in the autumn. These will usually produce sufficient roots to enable them to become self-supporting if transplanted from eighteen months to two years from the date of layering. Cuttings will root despite several accounts which I have read to the contrary; mention is made in *The Garden*, March 19, 1881, p. 315, that DR. LINDLEY had offered a prize to anyone who could produce a rooted cutting. There is a photograph in *The New Flora and Silva*, 1932, Vol. 4, No. 3, p. 166, of a cutting I rooted and an account of the method employed for propagation on p. 162. Cuttings of the current year's growth, from three to five inches long with a thin "heel" of older wood, should be taken in July and inserted in pure sand in a closed propagating frame, with a temperature of 60–65° F. Generally speaking, the cuttings should have produced enough roots to enable them to be transferred to pots some six to eight weeks after insertion, but considerable skill is required to bring the young plants safely through their first winter. In MR. COUTTS' garden at Westfield, Woking, there is a fine specimen of *Chimonanthus praecox* var. *grandiflorus* which I raised from a cutting. This is now 8 feet high and 7 feet through and is growing in a border having a north-east exposure. MR. COUTTS writes on December 20, 1951, that it is thickly covered with flower buds, with a few of the flowers already open. Propagation by "eyes" is advised in a note in *The Garden*, April 9, 1881, p. 386, and this should be worth a trial. I would suggest making a "bud cutting," such as one uses for a Camellia, the difference being that Chimonanthus is, of course, deciduous, and the leaf would not persist.

Chimonanthus praecox var. *grandiflorus*—This is a cultivated variety

with large flowers, and is well illustrated in the Botanical Register, t. 451 (1820).

The flowers, although more colourful than those of the wild type, are not so fragrant. The outer parts are yellow and the inner petals purple.

In *Plantae Wilsonianae*, WILSON states it is a favourite shrub in the gardens of the wealthy Chinese, and specimens were collected from cultivated plants in Western Hupeh and Ichang in December, 1900, and January, 1908.

This year (1951) flowers were open on a plant against a wall facing west during the last week in November, and it is interesting to note that the date on which it received an Award of Merit from The Royal Horticultural Society was January 17, 1928, when it was shown by SIR WILLIAM LAWRENCE.

The commercial method of increasing this variety is by grafting young shoots under glass in February on to seedlings established in pots of the type plant when these are about pencil thickness.

Chimonanthus praecox var. *luteus*—This variety also has larger flowers than the type and differs from this and var. *grandiflorus* in its clear yellow sepals and petals which have no purple colouring. My observations made over several years show that it is consistently later in flowering, and in this connection it is interesting to note that The Royal Horticultural Society's Award of Merit was granted to it on February 17, 1948, when it was exhibited by R. C. NOTCUTT LTD.

I can find no authentic account of the date of introduction of this lovely plant into England. BEAN states on p. 338 in the fourth edition of his book *Trees and Shrubs Hardy in the British Isles* that it had then been known in gardens for eighty or more years. In *The Garden* dated February 18, 1882, p. 112, mention is made of *Chimonanthus lutea*, and in the same journal on February 9, 1884, R. I. L. mentions a plant growing at Cambridge, and R. IRWIN LYNCH writes of this plant on February 23, 1901, and, incidentally, the late-flowering character is noted by him. MR. W. T. STEARN has kindly given me his help by referring to works in The Royal Horticultural Society's Library, and has written to me saying, "If the first publication of the epithet *luteus* is in BEAN's work, then the correct name for the plant is *Chimonanthus praecox* var. *concolor*, the name used by MAKINO in *Bot. Mag.* Tokyo, Vol. 23, p. 23 (1909), where the plant is described as having the 'flowers concoloured, the interior petals yellow as are the outer ones.' The description was made from a plant cultivated at Tokyo but recently introduced from China. Hence it would appear to be a Chinese garden form introduced direct from China into Europe, and not via Japan, like many other garden forms."

I think it would be worth while carrying out further research into the origin of this plant. I have even heard it expressed that specific rank has been given to some plants based on less apparent differences than those which exist between this plant and the type.

Propagation is usually carried out by grafting, as described for var. *grandiflorus*, but even so this remains a very scarce plant. It would be most interesting to grow plants of this variety from seeds to see if they would produce clear yellow flowers. Seeds, however, are not produced very freely.

PLANT NAMES*

A Botanical Nightmare

MR. PAULUS HUNTER, Professor of the History of the English Language at Bedford Park University, was an ardent amateur botanist and gardener who prided himself on his knowledge of plant names. One day he took a particular friend to the nearby New York Botanical Garden to see his favourite early blooming shrub. He explained that it was the Japanese Quince and that its botanical name was *Pyrus japonica*. His friend looked at the label, gave him a contemptuous look, and informed him that he was mistaken, that the name was *Cydonia lagenaria*. He was quite upset at this. He did not want his friend to think him either stupid or ignorant. He knew quite well that the plant had always been labelled with the name which he gave it. It was still more disconcerting to come the next year with other friends, tell them the story, explain it was now called *Cydonia lagenaria*, have them look at the label and again inform him that he was wrong, that it was *Cydonia japonica*. The third year he took no chances. He went alone and looked at the label. Sure enough, it had still another name, *Chaenomeles lagenaria*.

However, he did not worry too much over this. After all, it was only one plant. Coming into a friend's garden one day, he remarked on the beauty of a great group of white Daylilies, *Funkia subcordata*, and was astonished at the raising of the eyebrows of the owner of the garden, who informed him quite tartly that it was the Fragrant Plantain Lily, *Hosta plantaginea*. Wishing to retrieve his botanical standing in his friend's eyes he said, "Well, what do you now call the Boston Ivy, *Ampelopsis Veitchii*, which is growing so well on your house?" "That," his friend said, "is Japanese Ivy. The nursery sold it to me as *Ampelopsis japonica*, but when I went back to get another plant the next year they said it should be *Vitis inconstans*. Now, however, it is called *Parthenocissus tricuspidata*."

After that PROF. HUNTER was afraid to mention out loud the name of any plant. On his next visit to the Arnold Arboretum near Boston he looked carefully at every label. It seemed to him that every name was new. His favourite Crab Apple, *Pyrus pulcherrima*, had become *Malus floribunda*. HALL'S Magnolia, *Magnolia Halleana*, had become the Starry Magnolia, *Magnolia stellata*. *Magnolia conspicua* had been changed to *Magnolia denudata; Magnolia parviflora* had been changed to *Magnolia Sieboldii*; worst of all the Swamp Magnolia, *Magnolia glauca*, had been changed to the Sweet Bay, *Magnolia virginiana*. This last name really made him mad. He had just seen this growing well at Magnolia, just north of Salem, Massachusetts. He knew the town had been named for it. He remembered seeing it also on his last visit to Florida. Why should Virginia be singled out for credit?

Why, for instance, was the Common Hemlock called *Tsuga canadensis*? It grew from Nova Scotia to Minnesota and south to Georgia and Alabama. He had not realized all those places were in Canada.

* Reprinted through the courtesy of the Garden Club of America.

PROFESSOR HUNTER decided to swallow his pride which made him think of himself as an unusually well-informed person about plants and to go to see PROFESSOR WETZEL, the noted botanist of Fairfield, to ask him why all this was happening.

PROFESSOR WETZEL looked bored and explained to him that many of the older names he knew had simply been mistakes. They were of course common in botanical and horticultural literature, in nursery lists and on labels, but the only fair way to establish the correct name was to take the original, the oldest, name. Botanists at an international convention had established this rule and agreed to abide by it. Recent research had shown that often the best-known names were not the oldest. Now, every few years an aspiring botanist came along and found in some older overlooked book a different name for some favourite plant. Apparently this could go on forever, as more old, hitherto lost books were discovered. Whether the books were widely distributed or not or whether the plants were ever really known by that name did not seem to matter.

There were, moreover, various other reasons for name changes. There was a dispute whether Pears, Apples and Quinces should be considered members of the genus *Pyrus*, or be separated in the different genera *Pyrus*, *Malus*, *Cydonia* and *Chaenomeles*. There was still a more difficult question whether *Prunus* should include not only Prunes and Plums, but Cherries, formerly *Cerasus*, Peaches, formerly *Persica*, and Almonds, formerly *Amygdalus*.

After all, what was a genus and what was a species? What, indeed was a variety? Was it a true botanical variety or just a geographical variety, or worst of all a horticultural variety which all botanists agreed had no standing whatsoever. PROFESSOR WETZEL didn't seem to be sure. He took down from a high shelf an imposing volume, looked in the index for "species, definition of," turned to one page and read solemnly out aloud, "A species is that entity which a competent and recognized systematic authority considers to be a species." He reddened a little and gave the book to PROFESSOR HUNTER to read for himself. He seemed to think PROFESSOR HUNTER was laughing at him. It wasn't his definition. It was in the book.

The whole thing was hard to explain to a non-botanist. PROFESSOR WETZEL became rather apologetic. "The synonomy" he said, "is very confusing."

Then there was a more recent confusion caused by the newest monograph on the Peony. This book changed the name of the well-known Chinese Peony, *Paeonia albiflora*, to *P. lactiflora*. A great botanist had named it *P. albiflora* in 1788 and it had been called by this name ever since but now some obscure book showed that the same botanist had once in 1776 referred to it as *P. lactiflora*. But still worse was the case of the common red European Peony. LINNAEUS, father of botany, had in 1753 named it *Paeonia officinalis*. The name had appeared in botanical and horticultural books ever since. Hundreds of thousands of plants had been and still were being grown under that name. But now it appeared from study of LINNAEUS' original specimens that the plants so named in all the other books and grown under that

name in gardens all over the world were not the same as the plant of LINNAEUS. There had been a mix-up sometime before 1760. The plants we knew as *Paeonia officinalis* were really *P. peregrina*. The plants known through the centuries as *P. peregrina* were really *P. officinalis*. All new books must change back the names, and all garden labels must now be changed. In reading any book one must find out first if the names had been changed and in gardens one couldn't be sure if the names had been changed or not. The net result was no one really knew which plant he was reading about and no gardener could be certain which plant he had.

On the train home PROFESSOR HUNTER reflected on all this. He wondered what would happen to his lecture courses on the history of the English language if this same line of reasoning was applied to the English names for common animals or objects.

He was sitting one evening in his study thinking of the strange mixture of names, when he suddenly seemed to be transported to an old library quite unfamiliar to him. He seemed to be reading many books on the shelves and they seemed to be very strange books using words in a very strange way. He came across the most extraordinary facts which upset him no end. He was looking into the derivative of the word "chair," and discovered in an old book that it came from the Chinese word "cha," so named many centuries before Christ. But in the book there was a diagram to show exactly what the "cha" meant, and extraordinarily enough, it turned out to be a table, while on the next page the word "ta" from which "table" had been taken, had a beautifully illustrated drawing showing a chair. PROFESSOR HUNTER thought that hereafter chairs should be called "tables" and tables should be called "chairs." This would be an inconvenience to those who were trying to sell dining-room chairs, to remember whether the word chair would mean something to put the dinner on or something to sit on. After all nurserymen had changed *Pyrus japonica* to *Cydonia lagenaria* and then to *Cydonia japonica* and then to *Chaenomeles lagenaria*. Why shouldn't chair manufacturers change their names to table manufacturers. He decided to take up the matter with the head of his University the next day to have this change made.

Looking at another book he became interested in the history of our domesticated animals and going back many centuries, he found the original name "horse" pictured an animal with horns, by which was sitting a man milking. The name "cow" was given to the wild steed on which the warriors rode to battle. It was evident that sometime in the past history, the two names had been confused, but that we were now calling horses what really were cows. It would make race-track people subject to ridicule to have to announce cow races, but that would have to be put up with for a time until people became used to it. He hoped by that time some other book would not turn up showing that what we now called horses were originally called "goldfish." It would be still more difficult to persuade people to go to the track to see goldfish races. But after all, the botany professor had said that we must abide by the rules, and we must get back to the original source.

PROFESSOR HUNTER felt more and more sick as he contemplated his

duties in all these matters, but duty it was and the next morning he must go to the President of his University and have all these names changed. He was quite relieved therefore to feel a hand on his shoulder shaking him and to hear his wife's voice telling him to wake up, put out the cat (which he vaguely remembered ought to be called ostrich) and come upstairs to bed.

THE BUILDING OF A DESERT GARDEN

(The first year's experience at Elath at the north-eastern shore of the Red Sea.)

*Dr. Elisabeth Boyko**

INTRODUCTION

THE experimental garden in Elath (Israel) is the most southerly and arid link in a chain of stations dealing with agricultural and horticultural problems embracing a whole variety of climates, ranging from the fairly humid zone of the Galilean mountains (north Mediterranean) to this zone, where the mean annual rainfall is around 18 to 25 mm. according to the limited existing records and where even rainless years have not been infrequent.

The whole area therefore seems at the first glance to be nearly bare of vegetation. However, as the Gulf area on the Israel side lies at the foot of the mountain-slopes of Mount Sinai, the wadis† receive a certain amount of water coming from the rains falling in the catchment area of these mountains.

The bulk of the rains in the Gulf area fall on and around the far higher elevations on the eastern side of the Wadi Araba (the Transjordan side). The waters which intermittently run down the wadis support a scattered vegetation of a few thorny Umbrella Acacias (*A. spirocarpa* Hoechst. and *A. raddiana* Savi.) and a number of desert shrubs as well as perennials and annuals.

These wild plants appear almost solely in the wadis and, looking down upon them from an aeroplane, their outlines can be clearly seen accentuating the wadis.

The precipitation could not support a permanent cultivated vegetation and whatever it is planned to grow must depend on some kind of irrigation. (This does not apply to vegetation supported by underground and, in the main, highly saline water which occurs in various places in the Wadi Araba, also near the Gulf.)

Using water for irrigation from some neighbouring wells we had further to consider the following local conditions for the establishment of our garden:

* Scientific Assistant, Department of Research, Extension and Agricultural Education, Ministry of Agriculture, Israel.

† Wadi: dry water course carved out by the erratic floods which occur in such areas in the rainy season.

The climate; the garden site; the type of soil; the type of water used for irrigation.

Before discussing each one of these items in some detail the special set-up of the garden of Elath ought to be explained. Although the basic idea was the establishment of an experimental garden it was intended to make it assume the outward shape and plan of a public garden, mainly for the benefit of the inhabitants of this extreme and desert area. Nevertheless it would be the place where all the plants are to be tried out and experimented with, which are capable of withstanding the vagaries of the climate and soil of this area. These items had to be considered by me when the lay-out of the garden was started in November 1949.

THE CLIMATE

Elath is situated in one of the hottest and driest areas in the world. (The mean monthly temperature for July is about 33° C. (92° F.), of January 15° C. (59° F.)) It lies in the central parts of the northern desert belt and, though on the border of the Red Sea, has an exceedingly low humidity all the year round.

For comparison: *

	Yearly mean
Relative humidity in Jerusalem	60·0%
,, ,, on Mt. Carmel, Haifa	71·0%
,, ,, in Elath	39·1%

This low humidity is still further accentuated by strong and persistent north winds and, less frequently, south winds throughout the year. A long summer—April to October—is made bearable by relatively cool nights. Day temperatures in the shade may reach 43° C. (110° F.) quite frequently. Generally though they remain around the figures of 35–38° C. (95–101° F.) during day-time. From October to March mornings and nights are exceedingly cold and icy winds prevail and even in summer nights a blanket is often necessary.

In the first year approximately 20 dunams (1 dunam is 1,000 square metres) have been roughly levelled and planted. In the second year, microclimatic records have been started.

Here only the general outline of the local climate will be indicated, confirmed, though, by a number of microclimatic measurements which include the following:

1. Wind directions and wind velocities.
2. Soil temperatures at day-time and night-time.
3. Evaporation during day-time and night-time.
4. Air humidities and air temperatures.
5. Water management and water evaluation in respect of soil physics.

* Meteorological data supplied by courtesy of the governmental Meteorological Service of Israel.

The gist of all these facts and figures can be expressed as follows: The demands made on the resistance powers of these plants in this exceedingly arid and wind-swept area are high to the extreme. Add to this the fact that in this first year the irrigation provided was very scanty and was subject to repeated interruptions, these interruptions lasting from 8 days (frequently) to sometimes as long as 19–26 days in July, the hottest month.

This interruption in the irrigation of the plants provided a valuable test in regard to the right choice of species, more than 90 per cent. of which survived without sustaining any visible or permanent damage. The behaviour of all the plants during and after this drought-period has been recorded.

In order to characterize the nature of the climate for the reader who is familiar with this or with similar areas one should realize that the most accurate picture of any climate is given by the wild vegetation of the area and particularly by the climax vegetation.*

The onlooker here is confronted with the very scattered individuals of a Haloxylon-Salicornicum society, all members of which are inhabitants of hot, arid deserts. By far the greater part of the area, however, is absolute desert and without a single plant individual. Only in the wadis and erosion channels do we meet with more than 100 desert species each of these being represented by a few scattered individuals only, which include *Acacia Raddiana* and *A. spirocarpa*.† Classified according to this sensitive indicator the climate may be called a Haloxylon-Salicornicum climate.

THE GARDEN SITE

The specific area taken over as the garden site was chosen for a number of reasons, but mainly for the fact of its being centrally situated. This is an essential consideration in such a climate. The other points taken into account were the position of the wadis, which are situated in a west-east direction, mainly to ensure that the erratic floods which may be streaming down from the mountains do not endanger the plantation. As a result the garden site was confined to the broken slopes between the beach and the higher mountain-ranges. These at present unsightly slopes, far from representing a picturesque rockery garden site, are mere shapeless gravel heaps and mounds which await formation and an adequate plant cover in order to correct the worst failures of nature.

Israel possesses a number of areas which have a fairly saline soil, and where very high temperatures prevail in the summer months. In those areas surveys have been made of those species which from the outset gave some indications as to the types of plants capable of withstanding extreme conditions of aridity and salinity and were already to be obtained from nurseries here. By checking the ecological requirements of these plants, their country of origin and geographical distribution a

* H. Boyko. "On the climax vegetation of the Negev with special reference to arid pasture problems." *Pal. Journ. of Bot. Rehovot Series*, Vol. VII. Rehovot, 1949.

† Dr. E. Boyko and E. Mayer. *The Negev, Facts, Hopes and Plans*, Wizo Executive Dept. for Zionist Education. Tel-Aviv 1951.

number of plants was chosen which seemed worth while trying to grow in the Elath area. Further potential species are chosen in co-operation with the Ecological Adviser to the Government.

The planting scheme covers altogether about 50–70 dunams, the aim being to cover roughly the main slopes with trees, to make the steeper slopes into terraced rockeries, planted largely with Cacti and other succulents, and to add shrubs, perennials and suitable annuals in between and as a foreground to the trees.

At the outset we did of course not know anything of the ability or fitness of any of the plants to withstand the conditions in this area, since, apart from the wadis and a few annual desert species found outside them, the chosen area showed no plant cover whatsoever throughout the year (Fig. 44).

The first months were the most trying for the plants. At the beginning the water supply was inadequate, a fact which endangered the lives of the first courageous strugglers among the plants. The situation improved only after August 1950 to some degree.

THE SOIL

The soil is a roughly broken-down gravel derived mainly from the Sinai granite mountains; it consists of granite gravel, quartz, calcite and gneiss. There are negligible traces of what can be termed "soil" in an agricultural sense, the cause of which being the total lack of nitrogenous matter and the lack of precipitation preventing chemical weathering of the mineral matter. For the proportion of rough and fine sand gravel the fairly characteristic soil test on the physical soil structure gave the following result:

Mechanical analysis:

Stones (Granite and Limestone)	61·0%
Coarse Sand	23·0%
Fine Sand	12·3%
Silt	2·7%
Clay	1·0%
	100·0%

From the chemical soil tests it appears that there is also a considerable amount of salts in the soil, varying in quantity every few metres, but always in sufficient quantities for the soil to taste strongly of salts everywhere and to form salt efflorescences on the soil surface after watering. These are caused by the strong evaporation resulting from the upward movement of irrigation water to the surface.

After prolonged irrigation for several months, however, the salts are partly washed out and the top layer of accumulated salts disappears gradually in most parts, since the porosity of the soil is very high.

The texture of the soils is like a very porous gravel heap on top, up to about 30–60 cm. depth. It becomes heavier and harder lower down. If normally watered, the moisture is soaked in as though absorbed by a sponge in most places. In other places it takes up to half an hour to

CHEMICAL ANALYSIS OF TWO SOIL SAMPLES FROM SLOPES IN THE GARDEN AREA

NORTH	SOUTH	WATER EXTRACT
0·012	0·35	% Chlorine
0·020	0·58	NaCl
1·20	1·05	Soluble Salts
0·74	0·06	Soluble Sulphates
		HCl EXTRACT
1·87	1·83	Iron % (Fe)
3·80	4·04	Aluminium % (Al)
0·49	0·50	Calcium % (Ca)
0·28	0·20	Magnesium % (Mg)
0·13	0·16	Potassium % (K)
2·94	0·10	Sulphur % (S)
0·07	0·09	Phosphate % (P)

absorb the amount of water held by an irrigation basis. The surface tends to build salt-crusts and soil-crusts and experiments are being made with mulches.

After a period of six months the plants received a small addition of food in the form of "nitrophos," which is a composition of decomposed nitrogenous organic matter which is balanced by additions of chemical artificial fertilizers, in order to stimulate their growth. By then the fact had been established that the plants could manage to keep alive and subsist on the local soil, forming roots and some additional, if slow, top-growth. We did not consider a transfer of some other soil to any extent, because this would not answer the question as to what can grow naturally on this soil with little additional water.

THE WATER

The water used up to now for these irrigations comes from a well-boring which produces relatively sweet water. It will have to be ascertained in the following seasons whether its composition has any influence on the development or otherwise of plants watered from this source. The high percentage of certain specific salts contained therein is shown by the analysis of water given below and may well prove pernicious for many of the more tender species, especially in their early stages of development.

*Analysis of water made in the Government's laboratory**

Ca . . .	314	SO_4 . . .	1,400
Mg . . .	173	Cl . . .	190
K . . .	19	Fe . . .	traces
Na . . .	153	Al . . .	,,
CO_3 . . .	95	Si . . .	,,

THE PLANTS AND THEIR BEHAVIOUR

As far as possible each plant species is being planted on two different exposures to test its behaviour in regard to variation on the IE factor

* Data supplied by courtesy of the Water Department, Ministry of Agriculture.

Colour Photograph, J. E. Downward

FIG. 36—*Anemone blanda* var. *Ingramii* in COLONEL F. C. STERN's garden at Highdown, Goring-by-Sea, Sussex (See p. 75)

FIG. 37—*Malus sylvestris* Mill. (*Pyrus acerba* DC. of SOWERBY's *English Botany* 3, t. 389) (See p. 65)

SOME PROGENITORS OF OUR CULTIVATED APPLE

FIG. 38—*Malus pumila* Mill. (*Pyrus mitis* Syme of SOWERBY's *English Botany* 3, t. 390) (See p. 65)

FIG. 39—*Malus baccata* (L.) Borkh. (*Pyrus baccata* Linn. of *Bot. Mag.* t. 6112) (See p. 65)

SOME PROGENITORS OF OUR CULTIVATED APPLE

FIG. 40—*Malus prunifolia* (Willd.) Borkh. (*Pyrus prunifolia* Willd. of *Bot. Mag.* t. 6158) (See p. 65)

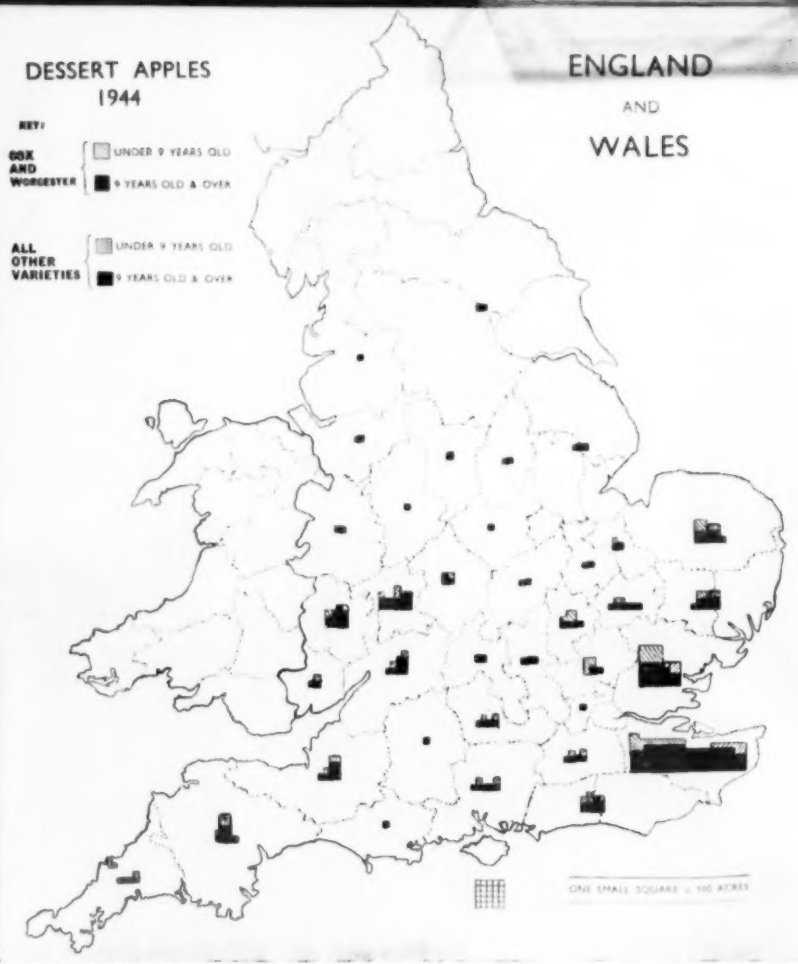

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FIG. 41—Map showing distribution of Dessert Apples, 1944 (See p. 67)

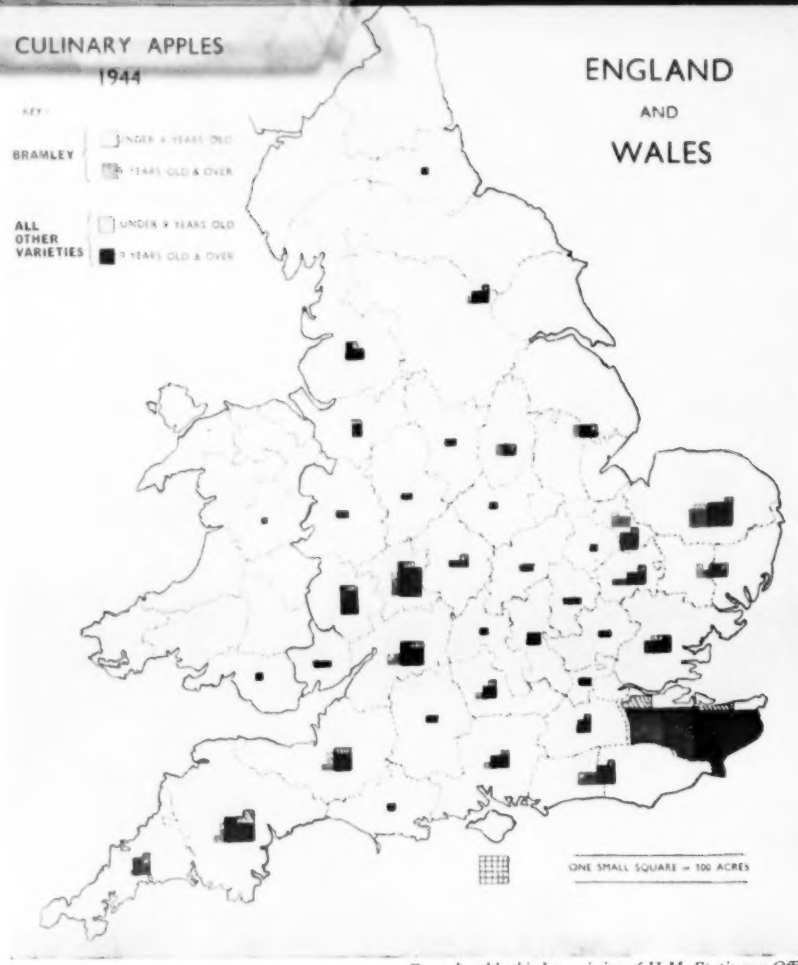

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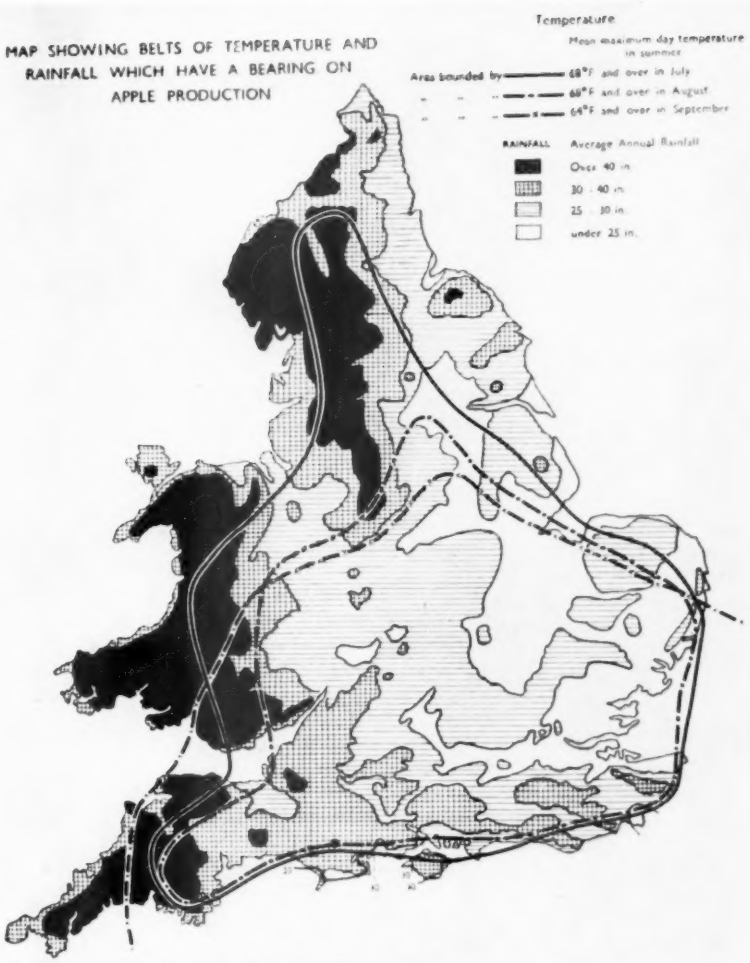
FIG. 42—Map showing distribution of Culinary Apples, 1944 (See p. 67)


MAP SHOWING BELTS OF TEMPERATURE AND RAINFALL WHICH HAVE A BEARING ON APPLE PRODUCTION
Temperature
Mean maximum day temperature in summer
Area bounded by 68°F and over in July
68°F and over in August
64°F and over in September
RAINFALL Average Annual Rainfall
Over 40 in.
30 - 40 in.
25 - 30 in.
under 25 in.

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THE HISTORY OF THE APPLE

FIG. 43—Map showing belts of temperature and rainfall which have a bearing on Apple production (See p. 67)

THE BUILDING OF A DESERT GARDEN

FIG. 44—The garden area before planting was started, November 1949 (See p. 85)

FIG. 45—Part of a Cactus-planted slope in the garden

FIG. 46—A thicket of *Tamarix articulata*, medium height 1·20 m., one year after planting. (Planted with a height of 20 cm.) (See p. 88)

Photos, Douglas Elliott

FIGS. 47, 48—*Leucospermum reflexum* (See p. 91)

Colour Photograph, J. E. Downward

THE WINTER SWEET

FIG. 49—Forms of *Chimonanthus praecox* (See p. 77); left, *C. praecox grandiflorus;* centre, typical form; right, *C. praecox luteus*

(Insolation-Exposure). The main wind direction is from the north, but there are also frequent strong and persistent south winds. Although we have only made a few measurements of soil temperatures, we have already noted that the surface temperatures naturally vary strongly on the south and north slopes. These were of course only the first rough experimental attempts, because one will have to take into account a very large number of chemical soil tests before starting comparative measurements.

Although the outward general appearance of the soil seems rather uniform, there are stretches, particularly on the slopes, which offer quite a different aspect. There, often, the sandy top layers are blown away from the rocky salt body beneath and plantings of any kind in this material are impossible. As far as these stretches of naked rock are limited it is being tried to cover them by planting climbers, creepers and shrubs at the bottom or above these naked cliffs and just let the branches or creepers give a draped top cover from either above or below. In some cases the planting holes have to be shifted several times until a likely spot is found into which the roots can be fitted. It can of course happen that the roots at a later stage strike such a salt rock layer and perish, if they are unable to by-pass it. Meanwhile our experience on the spot is not sufficient to enable us to predict the staying power or subsequent behaviour of all the plants set out in the area of the garden. We only know of their reaction and behaviour after these first months of planting, that is up to a maximum of one year and a half for the first batch of plants.

All the plants with few exceptions are meant to withstand harsh, arid conditions and are not being pampered by too much irrigation. Under these strict conditions we have nevertheless a few outstanding examples and results which are worth mentioning individually.

TREES

Cordia mixa L.: One of the first on our planting list and among the first trees brought to Elath in November 1949. Notwithstanding an exceptionally hard winter with persistent fierce gales and low temperatures and having been irrigated with a minimum of water they grew noticeably, retaining their lush foliage and making a yearly increase of length of branches of 50–70 cm.

Parkinsonia aculeata L.: These seem to grow exceedingly well and trees planted only at a size of 1 m. approximately are now well over 3 and 4 m. in height with a corresponding width of crown. They have also withstood the storms successfully, although it is known that elsewhere they are apt to break easily in stormy weather conditions.

Acacia cyanophylla Lindl.: These also seem to find the conditions congenial and quite to their taste. Planted with a height of 25–35 cm. they have now reached heights of about 1·80 m., are richly branched, of a lush green, with leaves unmangled by the fiercest winds and have even produced some abnormal giant-sized leaves in various places. They are being used now in places where plants of a more demanding nature would be out of question.

Tamarix articulata Vahl. *and T. pseudo-palasii* Gutmann: These two

species have been introduced into this area together with other varieties of this species with—apparently—definite success. The groups of nursery plants planted in January 1950 at the mean size of 20 cm. length have now a medium height of 1·20 m. (Fig. 46) and have become thick shrubs, covering plots in nearly all exposures. Not one in about 300 trees has perished since.

Casuarina sp.: These trees look very promising indeed. Although they sometimes drop their "needles" as a reaction to their transfer to Elath they reproduce these quickly and look sturdy and absolutely fit. They have the one misfortune in that they suit the crows of the neighbourhood too well for their nest buildings: the birds will sit on the tops breaking top and side branches and fly off with them for building purposes.

It would seem an omission not to mention that *Melia Azederach*, *Dalbergia Sissoo*, *Ficus religiosa*, *F. nitida*, *F. bengalensis*, *Grevillea robusta* and a number of others introduced up to now are getting along satisfactorily. The main purpose here was to underline the outstanding ones and those with the longest records on the spot.

SHRUBS

Clerodendron sp. takes some time before it starts growing, but picks up later and makes a lush green shrub. *Lantana* hybr. sp. (red) is sensitive to transplantation but once it is established it appears able to stay, putting forth a wealth of bloom. So does Parkia, an indefatigable flower producer, introduced lately from the Philippines. Planted in March it started flowering in July and has continued doing so up to April. *Lantana delicatissima* has also nearly reached this record, flowering from June to March.

SUCCULENTS

A success of nearly 100 per cent. is claimed by Cacti so far (Fig. 45). A number of *Cereus peruvianus* have been planted merely from cuttings, all of which managed to draw roots and achieve new growth, flowers and fruit. The same applies to *Opuntia candelabriformis* and various other Opuntias, *Aloe arborescens* and other Aloes, *Euphorbia candelabrum*, *Aionium arboreum*, *Euphorbia grandidens*. *Mesembryanthemum acinaciforme* grows well but survived only to a small percentage, the long period of interrupted irrigation lasting for three weeks; its dense but shallow root system demands little but frequent irrigation of the top layers. They have been replanted however and are meant to cover some of the worst and steepest slopes.

Agave americana did well without any striking increase in size and so did *A. Fourcroydes*.

OTHER PLANTS

For the time being we failed with *Kleinia repens*, *Asparagus Sprengeri*, *Pittosporum Tobira*, but perhaps this was due to their bad luck in having had their irrigation interrupted too soon before becoming well established. *Yucca* sp. were an outstanding success. Unrooted stems had been supplied for planting, with stems of 10–15 cm. diameter and with a length of 120–150 cm. They managed to grow roots, new

tops of leaves and a large amount of sturdy offshoots at their bases. They look perfectly at home in their new surroundings.

Two more plants should be mentioned here for record purposes: one is the very unpretentious *Vinca rosea*; it is one of the perennials which received no irrigation at all for twenty-six days during the hottest time of the year. It nevertheless did not stop flowering and has continued to do so for more than eleven months already.

Water melons are the second plant worth mentioning. Although they were not included in the planting scheme of the garden, they were grown experimentally on a small bed. Sown in April they bore good-sized and tasty fruit from August till February; any time later than October represents an extraordinary out of time season, which may be interesting for the future cultivation.

The local flora shows a number of very interesting, if sparsely distributed, plants, mainly, as mentioned before, in the wadis, which it is planned to introduce into the garden area to a larger extent later on and as far as they appear suitable. Apart from this, a collection of the local flora, assembled and grown for demonstration purposes to those interested would seem to be a worthwhile addition to our garden. As a further extension of this collection the exchange of seeds from other desert areas has been started and it is planned to establish a botanical desert garden in the Elath area. Meanwhile the collection has been started of plants from this area mainly, some of which are transplanted from the vicinity while others are propagated by seeds. Their ecology and their germination habits are being studied.

It is hoped later on to collect and transfer collections of desert plants from all the other deserts of the world into this area.

It is planned to lay out systematic and plant geographical sections and also a section of economic desert plants in the course of this garden's development.

Time will show whether this plan can be carried out in part or in its entirety. Meanwhile on a small scale we have tried to grapple with the propagation problems of the plants in the vicinity and to sow and germinate the seeds received by the courtesy of foreign countries with desert areas like Argentine, Australia, the Karroo, Mexico, South Africa, etc.

AWARD OF GARDEN MERIT—LXXXV

406 CERATOSTIGMA PLUMBAGINOIDES

Award of Garden Merit, April 17, 1950

THIS delightful herbaceous plant of Chinese origin is also well known as *Plumbago Larpentae*. It attains a height of about 1½ feet and forms fine dense clumps which do not require staking, always a useful consideration. It bears its attractive clusters of vivid blue flowers, tubular with spreading lobes, on branching reddish stems in late summer and early autumn, lasting until frosts kill it back. The leaves often with the first touch of cold turn beautiful shades of red and bronze. As a rule

C. plumbaginoides has proved much more free flowering in the South than in the North, where it seems to open its buds much later. This plant increases rapidly forming attractive masses for the front of borders, both shrub and herbaceous.

407 CYTISIS × KEWENSIS

Award of Garden Merit, June 26, 1951

This remarkably floriferous hybrid is one of the most attractive of the genus for the rock garden or dry stone wall where its prostrate habit conforms delightfully to the contour of the rocks. The pale creamy yellow flowers are of a very delicate shade, combining with the blues and mauves and purples which are so plentiful in spring. The sight of a large mass of this plant in the Rock Garden at Edinburgh next to a mass of *Leptospermum* 'Grace Ward' with its wonderful rich blue flowers is unforgettable.

Cytisus × *kewensis* bears its flowers in pairs or groups of three in the leaf axils completely smothering the 12–18 inch plants with a cascade of bloom in May. The plants are rather slow growing and of an unusually delightful spreading habit. It requires very little pruning save a shortening of the longer stems after blossoming. It likes a well drained sunny location in sandy soil or a good light loam, but it is not a fastidious plant in regards to soil requirements. It is best propagated from cuttings taken in midsummer from half ripened wood, preferably with a heel. These are best potted up after removal from the rooting medium, as in this way good root growth will not be disturbed when setting out, for this plant, like most members of the genus, resents root disturbance.

408 DAPHNE × BURKWOODII 'SOMERSET'

Award of Garden Merit, June 12, 1950

This is a selected sister seedling of the famous Burkwoodii hybrid (*Daphne caucasica* × *D. Cneorum*). It is one of the fastest growing Daphnes, reaching a height of over 4 feet and forming a spreading woody shrub, which in late May is covered with clusters of six to eight blush pink fragrant flowers which are borne on short leafy stems. These are characteristic of this plant. The 1-inch lanceolate leaves are of medium green and make a pleasant foil for the very delicate colouring of the flowers and the buds which are a deeper shade of pink. This plant is often confused with *D.* × *Burkwoodii* which received an Award of Merit in 1935. It is a relatively easy plant, flourishing under varied conditions, and should find a place in most gardens for its floriferous habit and its wonderful scent.

NOTES FROM FELLOWS

Cistus Palhinhaii

MAY I amplify the brief notes which accompany the beautiful coloured plate of *Cistus Palhinhaii* appearing in the current number of the Botanical Magazine? In these the author questions my assertion that this Rock Rose is hardier than *Cistus ladaniferus*. Since the latter has a very extensive range, reaching from Portugal to southern France, it may well be that some of its forms are, in fact, more resistant to cold than *C. Palhinhaii*, but that has not been my own experience with plants of *C. ladaniferus* coming from south-western and southern Spain. While my two original specimens of *C. Palhinhaii* are still thriving, having survived the severe winter of 1947 with only minor frost damage, on that occasion all my Spanish collected plants, together with most of their hybrid progeny 'Paladin,' were killed outright.

MR. BURTT'S statement that forms of *C. ladaniferus* with "pure white flowers . . . are occasionally found" is somewhat misleading; actually this immaculate race is apparently the only one occurring in Andalusia where it is widely distributed and locally very abundant. There is just one more point I would like to draw attention to. In the Algarve province of Portugal the better-known blotch-flowered form of *C. ladaniferus* is the dominant, if not the only variety found. Its south-westward range, however, ends abruptly as soon as the soil becomes calcareous and on reaching the limestone promontory of St. Vincent it is entirely replaced by *C. Palhinhaii*. The compact bushy habit of this species would appear eminently suited to the wind-swept conditions which are so prevalent in that sea-girt locality.

Benenden, Cranbrook, Kent. COLLINGWOOD INGRAM

Leucospermum reflexum

One of the most striking and lovely shrubs to be added to New Zealand gardens in recent years is *Leucospermum reflexum*, a South Africans closely related to the Proteas and Leucodendrons (Figs. 47 and 48).

It can grow 8–10 feet in height and perhaps twice that in diameter I am told, but I have never seen one that size myself.

Our oldest plant at "Eastwoodhill" was planted in 1945 and is now about 8 feet across and 6 feet in height. Its foliage is neat, hairy, silvery grey like the Silver Tree (*Leucodendron*).

Its blooms, on their long, stiff, woody stalks, are so popular that one plant gets an annual pruning, when every stalk is cut back to about 6 inches. I think this is good for it as it might, if not hard pruned, easily become rather leggy perhaps. It certainly has never resented this complete removal of all its blooms and has responded each year with fresh growths 1½–2 feet in length.

It starts to flower the first year after planting. Each head of bloom contains about 100 curious blooms. The buds, at first almost salmon pink, are upstanding, the outside ones bloom first and, as they fade, the colour intensifies and the styles reflex to a position lying down along the stem; by this time they are brilliant red. The flower is at its most beautiful stage when half the flowers are reflexed and half still in bud.

The colour could be described as a hot orange-red though it goes through many stages between bud and mature bloom.

Our large plant, seen in bloom across the gully at a distance of a quarter of a mile, at once attracts attention by reason of its brilliance.

It is said to be frost tender, but will stand 8–10 degrees in our well-drained soil and sunny climate. I should expect it to be happy in the mild South of England provided it is given a warm hillside in full sun and in some wind. I suspect that the West might be too damp for it, though it might succeed in a dry, sunny spot.

South Africans in general being poorly rooted, it might be well to securely stake it at planting. If it should lie over on its elbow in a gale leave it and stake it in that position—it will quickly form into a normally shaped bush. Actually, wind is good for it. Water is liable to lodge and remain in the cluster of leaves at the ends of the shoot and rot the tip and the forming buds. In wind this moisture would be flicked out.

This is a fussy shrub to raise from seed. It is liable to damp off. It is usually raised from cuttings.

W. DOUGLAS COOK

"Eastwoodhill,"
Gisbourne, New Zealand.

WISLEY TRIALS, 1951

DAHLIAS

Two hundred and forty-nine varieties of Dahlia were grown in the trial at Wisley. Of these, seventy were grown for the first time, having been selected for trial by the Joint Dahlia Committee during 1950.

The trial was inspected on August 16 and 30 and September 21 by the Joint Committee of The Royal Horticultural Society and the National Dahlia Society, who made their recommendations for awards as given below.

Class VI A. Giant-Flowered Decorative

VARGAS GARDNER. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **A.M.** September 21, 1951, for general garden use.—Height 4 feet, compact and erect. Flowers 12 inches in diameter, on firm stalks 24 inches long, white with cream at the base of the florets.

ANNETTE. (Raised by Mr. H. Johnson, introduced and sent by Mr. J. Riding, 11 Alderman Hill, Hockley, Essex.) **H.C.** August 30, 1951, as a show variety.—Height 6 feet, compact and erect. Flowers 11½ inches in diameter, on stalks 10 inches long, Dresden Yellow (H.C.C. 64).

Class VI B. Large-Flowered Decorative

SHEILA LESLIE. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** August 30, 1951, as a show variety.—Height 3½ feet, compact and erect. Flowers 9 inches in diameter on stalks 10 inches long, white.

FRANK K. DOWDEN. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** August 30, 1951, for general garden use.—Height 4½ feet, compact and erect. Flowers 10 inches in diameter, on stalks 11 inches long, near Dianthus Purple (H.C.C. 730/1) with a bright silver sheen.

Class VI D. Small-Flowered Decorative

EDINBURGH. (Raised, introduced and sent by Messrs. Dobbie & Co., The Scottish Seed Establishment, Edinburgh 7.) **A.M.** August 30, 1951,

for general garden use.—Height 4½ feet, compact, bushy growth. Flowers 5 inches in diameter, on stalks 11 inches long, a velvety shade of Garnet Lake (H.C.C. 828), the outer third of each floret white.

REARLIGHT. (Raised by Mr. H. Kierby, introduced and sent by Messrs. Monkswood Nurseries Ltd., Estavarney Lane, Monkswood, Usk, Mon.) **A.M.** September 21, 1951, for general garden use.—Height 3 feet, compact habit. Flowers 3½ inches in diameter on stalks 9 inches long, near Orient Red (H.C.C. 819).

MAROON GEM. (Raised, introduced and sent by Messrs. J. G. Ballego & Sons, Bloemhove Nurseries, Leiden, Holland.) **H.C.** August 16, 1951, for general garden use.—Height 4½ feet, compact and erect. Flowers 4 inches in diameter, on stalks 12 inches long, a velvety shade of Currant Red (H.C.C. 821).

ELSTEAD. (Raised, introduced and sent by Mr. Owen Parratt, Boundstone Nursery, Farnham, Surrey.) **H.C.** August 30, 1951, for general garden use.—Height 5½ feet, very erect habit. Flowers 5 inches in diameter, on stalks 12 to 15 inches long, silvery white at base of florets changing to Cyclamen Purple (H.C.C. 30).

JESCOT ORANGE. (Raised, introduced and sent by Messrs. E. Cooper & Son, Jescot Nurseries, 388 Hatfield Road, St. Albans, Herts.) **H.C.** August 16, 1951, for general garden use.—Height 3½ feet, compact and erect. Flowers 3½ inches in diameter on stalks 12 to 14 inches long, Nasturtium Red (H.C.C. 14).

Class VI E. Miniature-Flowered Decorative

BORDON. (Raised, introduced and sent by Mr. Owen Parratt, Boundstone Nurseries, Farnham, Surrey.) **H.C.** August 30, 1951, for general garden use.—Height 3¾ feet, compact and erect. Flowers 2½ inches diameter, on stalks 8 inches long, Cardinal Red (H.C.C. 822/1).

Class VII A. Large-Flowered Pompon

ROSE DEW. (Raised, introduced and sent by Mr. A. T. Barnes, 13 Cardington Road, Bedford.) **H.C.** September 21, 1951, for general garden use.—Height 4 feet, very erect habit. Flowers 2½ inches diameter on stalks 8 inches long, white ground flushed and edged Fuchsine Pink (H.C.C. 627).

PERIWIG. (Raised, introduced and sent by Messrs. J. Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 4 feet, compact and erect. Flowers 2¼ inches diameter on stalks 10 inches long, Dresden Yellow (between H.C.C. 64/3 and 64/2) tipped Magenta Rose (H.C.C. 027/1).

SEAL. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 4 feet, erect habit. Flowers 2½ inches in diameter on stalks 6 to 9 inches long, base of florets Dresden Yellow (H.C.C. 64/1) and tipped near Brick Red (H.C.C. 016/1).

Class VIII B. Small-Flowered Pompon

OKAPI. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 5 feet, very erect habit. Flowers 1½ inches in diameter on stems 8 inches long, near Ruby Red (H.C.C. 827/2).

KAY URWEN. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 4½ feet, compact and erect. Flowers 2 inches in diameter on stalks 7 inches long, Dresden Yellow (H.C.C. 64/2) flushed and edged Rose Opal (H.C.C. 022).

Class IX B. Large-Flowered Cactus

EUGENE BLACK. (Raised, introduced and sent by Messrs. J. G. Ballego & Sons, Leiden, Holland.) **H.C.** August 16, 1951, for general garden use.—Height 4 feet, compact habit. Flowers 8½ inches in diameter on stalks 12 inches long, outer florets near Carmine Rose (H.C.C. 621/1), inner florets Dresden Yellow (H.C.C. 64/3) with a flush of Carmine Rose (H.C.C. 621/1).

PRIDE OF HOLLAND. (Raised, introduced and sent by Messrs. D. Bruidegom, Baarn, Holland.) **H.C.** September 21, 1951, for general garden use.—Height 4½ feet, compact and erect. Flowers 8½ inches in diameter on stalks 15 inches long, near Fuchsine Pink (H.C.C. 627).

BECKLEY. (Raised, introduced and sent by Messsrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 5 to 6 feet, erect habit. Flowers 8½ inches in diameter on stalks 12 inches long, near Fuchsine Pink (H.C.C. 627/2).

AMI GEORGE. (Raised, introduced and sent by Messrs. J. G. Ballego & Sons, Bloemhove Nurseries, Leiden, Holland.) **H.C.** September 21, 1951, for general garden use.—Height 6 feet, erect habit. Flowers 8 inches in diameter on stalks 12 inches long, base of the florets Dresden Yellow (H.C.C. 643) changing to Rhodamine Pink (H.C.C. 527/1)

HOEK'S GLORIE. (Raised, introduced and sent by Messrs. L. A. Hoek, Clingendaal, Den Haag, Holland.) **H.C.** August 16, 1951, for general garden use.—Height 4¾ feet, compact and erect. Flowers 7½ inches in diameter on stalks 10 to 12 inches long, Amaranth Rose (H.C.C. 530) with a golden sheen on the inner florets.

Class IX C. Medium-Flowered Cactus

LILLIAN BARNES. (Raised, introduced and sent by Mr. A. T. Barnes, 13 Cardington Road, Bedford.) **A.M.** August 16, 1951, for general garden use.—Height 3½ feet, very compact habit. Flowers 5½ inches in diameter on stalks 12 inches long, pure white.

PAVANE. (Raised by Messrs. Alfons van Dyck, introduced and sent by Messrs. H. Carlée Ltd., Haarlem, Holland.) **H.C.** September 21, 1951, for general garden use.—Height 3 feet, compact and erect. Flowers 7 inches in diameter on stalks 10 inches long, Roseine Purple (between H.C.C. 629 and 629/1).

SHEILA BRUNTON. (Introduced by Messrs. Wm. Westwell & Sons, The Nurseries, Leigh, Lancs., raised and sent by Mr. J. F. Barwise, Towneley Nurseries, Towneley, Burnley, Lancs.) **H.C.** August 16, 1951, for general garden use.—Height 3½ feet, flowers 6 inches in diameter on stalks 12 inches long, Dutch Vermilion (between H.C.C. 717/1 and 717/2).

MELBA HANKIN. (Sent by Messrs. J. F. Spencer & Son Ltd., Hockley, Essex.) **H.C.** August 16, 1951, for general garden use.—Height 4 feet, compact and erect. Flowers 6½ inches in diameter, on stalks 12 inches long, Dresden Yellow (H.C.C. 64/1) with outer florets flushed Peach (H.C.C. 512).

BRIGHTLING. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex). **H.C.** September 21, 1951, for general garden use.—Height 4½ feet, erect habit. Flowers 6½ inches in diameter on stalks 12 inches long, Ivory White merging into Primrose Yellow (between H.C.C. 601/1 and 601/2), at the base.

FRANKENDAEL. (Raised by Mr. K. Maarse, introduced and sent by Nederlandse Dahlia Vereeniging, Uitwerweg 32, Aalsmeer, Holland.) **H.C.** September 21, 1951, for general garden use.—Height 5 feet, compact and erect. Flowers 5½ to 6½ inches in diameter on stalks 12 to 18 inches long, near Saffron Yellow (H.C.C. 7/1), inner florets a slightly deeper shade.

BRANDARIS. (Raised, introduced and sent by Messrs. W. Topsvoort, Aalsmeer, Holland.) **H.C.** September 21, 1951, for general garden use.—Height 4½ feet, compact and erect. Flowers 6½ inches in diameter on stalks 10 inches long, Fire Red (H.C.C. 15/1) changing to Dresden Yellow (H.C.C. 64) at the base of the florets.

WYRESDALE. (Introduced by Messrs. Wm. Westwell & Sons, The Nurseries, Leigh, Lancs., raised and sent by Mr. J. F. Barwise, Towneley Nurseries, Towneley, Burnley, Lancs.) **H.C.** August 16, 1951, for general garden use.—Height 5 feet, compact and erect. Flowers 5½ to 6 inches in diameter on stalks 8 to 12 inches long, Dresden Yellow (H.C.C. 64/1) overlaid Dutch Vermilion (H.C.C. 717).

Class IX D. Small-Flowered Cactus

JACQUELINE. (Raised and introduced by Mr. A. T. Barnes, 13 Cardington Road, Bedford, sent by Messrs. J. F. Spencer & Son Ltd., Hockley, Essex.) **H.C.** August 16, 1951, for general garden use.—Height 3½ feet, compact and erect. Flowers 4½ inches in diameter on stalks 9 to 11 inches long, outer florets Chinese Coral (H.C.C. 614/1) with a flush of Apricot (H.C.C. 609/1) and a reverse of Azalea Pink (H.C.C. 618/1); inner florets Lemon Yellow (H.C.C. 4/1) touched with salmon at the tips.

ALMEH. (Raised, introduced and sent by Messrs. J. F. Spencer & Son Ltd., Hockley, Essex.) **H.C.** September 21, 1951, for general garden use.—Height 4 feet, very erect habit. Flowers 4½ inches in diameter on stalks 10 to 12 inches long, Phlox Pink (H.C.C. 625/1) flushed Fuchsia Purple (H.C.C. 28/2).

LITTLE JOY. (Raised, introduced and sent by Mr. A. T. Barnes, 13 Cardington Road, Bedford.) **H.C.** September 21, 1951, for general garden use.—Height 3½ to 4 feet, compact and erect. Flowers 4 to 5 inches in diameter on stalks 12 to 14 inches long, outer florets near Fuchsine Pink (H.C.C. 627), inner florets Fuchsine Pink (between H.C.C. 627/1 and 627/2).

Class X. Miscellaneous

SPIKEY. (Raised, introduced and sent by Messrs. James Stredwick & Son, Silverhill Park, St. Leonards-on-Sea, Sussex.) **H.C.** September 21, 1951, for general garden use.—Height 4½ to 5 feet, compact and erect. Flowers 4 to 4½ inches in diameter on stalks 12 inches long. Florets tubular and pointed, Rose Madder (H.C.C. 23) with reverse of Rose Madder (H.C.C. 23/3).

EARLY-FLOWERING CHRYSANTHEMUMS

One hundred and twenty-two varieties of Early-Flowering Chrysanthemums were grown at Wisley in 1951. Thirty of these were grown for the first time, having been selected by the Joint Early-Flowering Chrysanthemum Committee in London during 1950. All the varieties were given the warm water treatment as a precaution against Eelworm attack.

The rooted cuttings were planted on April 24, 1951, three of each of the spray varieties and twelve of the disbudded varieties; the latter were stopped once and disbudded so that one flower developed on each main growth.

The trial was inspected by the Joint Committee on August 9 and 20, September 3 and 20, when the following recommendations for awards were made.

Flowers White

COTSWOLD GEM. (Raised by Mr. W. Avery, 11 Chrisdory Road, Portslade-by-Sea, Sussex, introduced and sent by Messrs. Greenyer Bros. Ltd., Broadwater Green Nurseries, Worthing, Sussex.) **A.M.** August 20,

1951, as a disbudded variety for cutting and garden decoration. Described R.H.S. JOURNAL 75, 127 (**A.M.** 1949 as a spray variety).

Flowers Yellow

DENISE. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** August 20, 1951, as a spray Pompon for cutting and garden decoration.—Plant of compact bushy habit, 18 inches high. Flowers double, 2 inches in diameter, in compact sprays on stems 10 inches long. Inner florets upright, outer florets recurved, near Aureolin (H.C.C. 003).

RADAR SUPREME. (Previously named 'Radiance') (sport from 'Radar,' introduced and sent by Mr. H. Johnson, 4 Colonial Road, Slough, Bucks.) **A.M.** August 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant of compact habit, 4 feet high, bearing erect flower stems of medium thickness 24 inches long. Flowers double, 5 inches in diameter, broad flat florets with incurving margins; inner florets incurved, outer horizontal; Chinese Yellow (H.C.C. 606) with a creamy yellow reverse.

LOUIE LEACH. (Raised, introduced and sent by Messrs. Greenyer Bros. Ltd., Broadwater Green Nurseries, Worthing, Sussex.) **A.M.** August 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and erect, 3 feet high, bearing erect flower stems 24 inches long. Flowers double, 5 inches in diameter, long broad florets with margins incurving; inner florets incurved, outer florets recurved, a bright shade of Aureolin (H.C.C. 003) with a creamy yellow reverse.

Flowers of Amber Shades

TIBSHELF IDEAL. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** August 9, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact, 3 feet high, bearing flower stems 24 inches long. Flowers double, 5 inches in diameter; florets broad and quilled, inner florets incurved, outer recurved; Lemon Yellow (between H.C.C. 4/1 and 4), with a creamy yellow reverse.

Flowers of Pink Shades

SALMON DAYDREAM. (Sport from 'Daydream,' introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** August 3, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact, 3 feet high, bearing flower stems 22 inches long. Flowers double, $5\frac{1}{4}$ inches in diameter; florets broad and flat, inner florets incurved, outer recurved; near Peach (H.C.C. 512/2) with a slight flush of Venetian Pink (H.C.C. 420/2) and a pale creamy gold reverse.

MARY ROSE. (Raised and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** September 3, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and bushy, bearing flower stems 15 inches long. Flowers double, 5 inches in diameter, florets long and narrow, inner florets incurved, outer recurved; silvery white flushed Fuchsine Pink (H.C.C. 627/3) with a silvery white reverse.

PEACH SWEETHEART. (Sport from 'Sweetheart,' introduced and sent by Messrs. Colham Green Nurseries Ltd., Hillingdon, Middlesex.) **A.M.** August 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact, 30 inches high, bearing flower stems 14 inches long. Flowers double, 3 inches in diameter, florets short and broad, incurved; Maize Yellow (H.C.C. 607/3) flushed Peach (H.C.C. 512/1) with a golden yellow reverse.

Flowers of Mauve Shades

HONOUR BRIGHT. (Raised, introduced and sent by Mr. E. Riley, Brookside Nurseries, Alfreton, Derbyshire.) **A.M.** September 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and very erect, 4 feet high, bearing flower stems 24 inches long. Flowers double, 2¾ inches in diameter, florets broad and flat, inner florets incurved, outer recurved; near Magenta (H.C.C. 27/2) with a silvery white reverse.

Flowers of Bronze Shades

CHATSWORTH. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **F.C.C.** September 3, 1951, as a disbudded variety for cutting and garden decoration.—Described R.H.S. JOURNAL 76, 66 (**A.M.** 1950).

MERRY LIGHT. (Raised, introduced and sent by Messrs. J & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** September 3, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and erect, 3½ feet high, bearing flower stems 24 inches long. Flowers double, 5½ inches in diameter, inner florets incurved, outer recurved; Yellow Ochre (H.C.C. 07) overlaid with Spanish Orange (H.C.C. 010/1) with a creamy yellow reverse.

TINKERBELLE. (Raised by Messrs. H. Shoesmith Ltd., Mayford Nurseries, Moor Lane, Westfield, Woking, Surrey, introduced and sent by Mr. J. R. Bell, Southdown Nurseries, Cross-in-Hand, Sussex.) **A.M.** September 3, 1951, as a disbudded variety for garden decoration. Plant compact and erect, 4 feet high, bearing flower stems 3 feet long. Flowers double, 5½ inches in diameter, inner florets incurved, outer recurved; a rich shade of Brick Red (H.C.C. 016) with a gold reverse.

BRONZE UNA. (Sport from 'Una,' introduced and sent by Mr. G. R. Bacon, Heathfield Nurseries, Leeds Road, Eccleshill, Bradford, Yorks.) **A.M.** September 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and bushy, 3 feet high, bearing flower stems 22 inches long. Flowers double, 4¾ inches in diameter, florets broad and channelled, incurved; chestnut bronze with a gold reverse.

Flowers of Red Shades

RICHARD LINDSEY. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** September 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and erect, 4 feet high, bearing flower stems 30 inches long. Flowers double, 6 inches in diameter, reflexed; florets broad with margins incurving, near Spanish Orange (H.C.C. 010) with a flush of burnt orange and a gold reverse.

Flowers of Crimson Shades

BURPHAM. (Raised by Messrs. H. Shoesmith Ltd., Mayford Nurseries, Moor Lane, Westfield, Woking, Surrey, introduced and sent by Messrs. Greenyer Bros. Ltd., Broadwater Green Nurseries, Worthing, Sussex.) **A.M.** September 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact, 3½ feet high, bearing flower stems 24 inches long. Flowers double, 5½ inches in diameter, reflexed, florets short and broad, near Currant Red (H.C.C. 821/2) with a gold reverse.

FALAISE. (Sent by Messrs. A. G. Vinten Ltd., Oldland Nurseries, Balcombe, Sussex.) **A.M.** September 3, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and erect, 4½ feet high, bearing flower stems 24 inches long. Flowers double, 4½ inches in diameter,

reflexed, florets broad with margins incurving; near Blood Red (H.C.C. 820) with a gold reverse.

RED FLARE. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** August 20, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact, 28 inches high, bearing flower stems 18 inches long. Flowers double, 4½ inches in diameter, reflexed, florets broad and flat, near Cardinal Red (H.C.C. 822) with a gold reverse.

MERRYDEW. (Raised, introduced and sent by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.) **A.M.** September 3, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and bushy, 26 inches high, bearing flower stems 12 inches long. Flowers double, 4½ inches in diameter, reflexed, florets broad with margins incurving, Blood Red (H.C.C. 820/1) with a light gold reverse.

Flowers of Purple Shades

GLEN STAR. (Raised by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire, introduced and sent by Mr. W. H. Clarkson, Woodside Nurseries, Glen Gorse, Oadby, Leicester.) **A.M.** August 9, 1951, as a disbudded variety for cutting and garden decoration.—Plant compact and erect, 3½ feet high, bearing flower stems 2½ feet long. Flowers double, 5 inches in diameter, reflexed; florets broad and quilled, near Chrysanthemum Crimson (H.C.C. 824/3) with a silver reverse.

CHRYSANTHEMUMS, KOREAN AND RUBELLUM VARIETIES

Thirty-nine varieties of Korean Chrysanthemums and *Chrysanthemum rubellum* were grown at Wisley for trial during 1951. The stocks of the varieties were given the warm water treatment (110° F. for 30 minutes) as a precaution against Eelworm attack.

The rooted cuttings, three of each variety, were planted on April 26, 1951. The plants were allowed to grow naturally, no disbudding being done. The trial was inspected by the Joint Early-Flowering Chrysanthemum Committee on August 8 and September 20, 1951, when the following recommendations for awards were made.

The number in brackets following the description of the variety is that under which it was grown in the trial.

BELINDA. (Raised by Mrs. O. Murrell, introduced and sent by The Orpington Nurseries Co. Ltd., Crofton Lane, Orpington, Kent.) **A.M.** September 20, 1951.—20 to 24 inches tall, vigorous with compact and bushy habit. Very free flowering with flowers semi-double, 2¾ inches in diameter, Phlox Pink (H.C.C. between 625/2 and 625/1). Flowering from August 25. [3]

CORAL MIST. (Raised by Mrs. O. Murrell, introduced and sent by The Orpington Nurseries Co. Ltd., Crofton Lane, Orpington, Kent.) **A.M.** September 20, 1951.— 3 to 3½ feet tall, of erect, bushy habit. Flowers semi-double, 3 inches in diameter, near Brick Red (H.C.C. 016/1). Flowering from August 4. [33]

DERBY DAY. (Raised by Mrs. O. Murrel, introduced and sent by The Orpington Nurseries Co. Ltd., Crofton Lane, Orpington, Kent.) **A.M.** August 8, 1951, as an Early-Flowering Chrysanthemum. Described R.H.S. JOURNAL **75**, 79 (**H.C.** 1949 as a Korean variety). [23]

AUTUMN SOWN CABBAGES

Thirty-four varieties were on trial, sown August 3, 1950, and transplanted September 19, 1950. They were judged by a sub-committee of the Fruit and Vegetable Committee on June 14, 1951, and the following recommendations for awards were made.

Heads Pointed

WHEELERS' IMPERIAL SELECTED. (Raised and introduced by Messrs. Wheelers (Warminster) Ltd., Warminster, and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** June 14, 1951.—Plant medium size, compact habit, with little outer foliage, dark green tinged with purple. Head small, solid and pointed. Ready June 15. A regular, level variety.

WHEELERS' IMPERIAL. (Raised, introduced and sent by Messrs. Wheelers (Warminster) Ltd., Warminster.) **A.M.** June 14, 1951.—Plant medium size, very compact and erect habit, with dark green foliage. Head small, solid and pointed. Ready June 9. A very regular variety.

FIRST EARLY MARKET SELECTED. (Raised by Mr. A. A. Clucas, introduced by Messrs. J. L. Clucas Ltd., Ormskirk, Lancs., and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** June 14, 1951.—Plant medium size, compact and erect with outer leaves spreading, dull grey green. Head medium size, compact and pointed. Ready June 26. A very regular variety.

DURHAM EARLY. (Raised by Mr. A. A. Clucas, introduced and sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancs.) **A.M.** June 14, 1951.—Plant large, outer leaves spreading and erect; head large, solid and dark green. Ready June 16.

MYATT'S EARLY OFFENHAM SELECT. (Raised and introduced by Mr. Myatt, Hextable, Kent, sent by Messrs. A. L. Tozer Ltd., Pyports, Church Street, Cobham, Surrey.) **A.M.** June 14, 1951.—Plant medium size with outer leaves spreading and erect; dull dark green in colour; head large, solid and pointed. Ready June 11. A very early and regular variety.

HARBINGER RESELECTED. (Raised and introduced by Messrs. Sutton & Sons Ltd., Reading, Berks., and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **H.C.** June 14, 1951.—Plant small, outer leaves compact and erect, dull dark green. Head small, solid and pointed. Ready June 27. A very compact and regular variety.

SUTTON'S APRIL. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berks.) **H.C.** June 14, 1951.—Plant medium size, outer leaves compact and erect, dark green. Head medium, solid and pointed. Ready June 16. An early and compact variety.

SUTTON'S FLOWER OF SPRING. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berks.) **H.C.** June 14, 1951.—Plant medium size, very compact and erect, dark green. Head large, very solid and pointed. Ready June 15. A variety showing very good form.

FIRST EARLY MARKET No. 218. (Raised by Mr. A. A. Clucas, introduced and sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancs.) **H.C.** June 14, 1951.—Plant large, outer leaves compact, grey green. Head large, solid and pointed. Ready June 19. A regular and large hearted variety.

MYATT'S OFFENHAM RESELECTED. (Raised and introduced by Mr. Myatt, Hextable, Kent, and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **H.C.** June 14, 1951.—Plant medium size, outer leaves spreading, dull green. Head medium size, solid and pointed. Ready June 15. An early and regular variety.

EARLY CARROTS

Seventy-eight stocks of Early Carrots were grown at Wisley in 1951. They were sown on April 17, 1951. The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on September 4, when the following

recommendations were made. The number in brackets following the description of the variety is that under which it was grown in the trial.

AMSTERDAM FORCING. (Sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** September 4, 1951.—Foliage 6 inches, dark green, vigorous. Roots 6 inches long, 1¼ inch wide, cylindrical, light red. [12]

NANTES IMPROVED. (Sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **A.M.** September 4, 1951.—Foliage 6 inches, light green, vigorous. Roots 6 inches long, 1¼ inch wide, cylindrical, light red. [26]

FRENCH FORCING. (Sent by Messrs. Ferry-Morse Seed Co., Mountain View, California, U.S.A.) **H.C.** September 4, 1951.—Foliage 9 inches, medium green tinged red purple, vigorous. Roots 1¾ inch long, 1¾ inch wide, half round, light red. [4]

YATES' SCARLET EXPRESS. (Sent by Messrs. Yates & Sons (Seeds) Ltd., Evesham, Worcs.) **H.C.** September 4, 1951.—Foliage 7 inches, medium green, vigorous. Roots 3 inches long, 1 inch wide, cylindrical, light red. [6]

AMSTERDAM FORCING. (Sent by Messrs. Gebr. van Beusekom, Westerkade 2, Utrecht, Holland.) **H.C.** September 4, 1951.—Foliage 7 inches, dark green, vigorous. Root 4¾ inches long, 1¼ inch wide, stump, light red. [11a]

AMSTERDAM, VATTER'S STRAIN. (Sent by Messrs. F. R. Vatter Ltd., Berne, Switzerland.) **H.C.** September 4, 1951.—Foliage 8 inches, medium green, vigorous. Root 4½ inches long, 1 inch wide, stump, light red. [15]

CARDINAL. (Raised by Weibullsholm Plant Breeding Institute, introduced and sent by Messrs. W. Weibull, A.B., Landskrona, Sweden.) **H.C.** September 4, 1951.—Foliage 8 inches, medium green, vigorous. Root 5 inches long, 1¼ inch wide, long stump, light red. [18]

NANTES IMPROVED. (Sent by Messrs. A. Hansen & Co. Ltd., Kastrup, Amager, Denmark.) **H.C.** September 4, 1951.—Foliage 8 inches, light green, vigorous. Root 5 inches long, 1¼ inches wide, half-long tapering, light red. [21]

NANTES U.S. TYPE. (Sent by Messrs. Ferry-Morse Seed Co., Mountain View, California, U.S.A.) **H.C.** September 4, 1951.—Foliage 8½ inches, medium green, vigorous. Root 4½ inches long, 1¼ inch wide, half long, tapering, light red. [24]

IDEAL. (Introduced by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2, and sent by Messrs. A. L. Tozer Ltd., Pyports, Church Street, Cobham, Surrey.) **H.C.** September 4, 1951.—Foliage 7 inches, medium green, vigorous. Root 5 inches long, 1¼ inch wide, cylindrical, light red. [30]

OUTDOOR TOMATOES

Ninety-one varieties of Tomato were grown on trial at Wisley. The seed was sown on March 28, 1951, and twelve plants of each variety were planted out on May 31. Each plant was staked, and stopped after the fourth truss. The lower leaves were removed as the bottom trusses ripened.

A sub-committee of the Fruit and Vegetable Committee judged the trial on September 4, and made recommendations for awards as shown below.

Fruits Light Green when Young

STONOR'S M.P. RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** September 4, 1951.—Plants fairly vigorous, 2½ feet, irregular

in height, slender stems and medium-sized foliage. Fruit in simple trusses, an average of nine per truss, 2½ inches in diameter, round and regular, flavour good. First fruit ripened August 20, 1951.

STONOR'S EXHIBITION RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **H.C.** September 4, 1951.—Plant fairly vigorous, 2½ feet, medium stout stems and medium to large foliage. Fruit mainly on simple trusses, an average of nine per truss, 2¼ inches in diameter, round and regular. First fruit ripened August 27, 1951.

STONOR'S PROLIFIC RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2) **H.C.** September 4, 1951.— Plants fairly vigorous, medium to stout stems, large dark green foliage. Fruit mainly on simple trusses, an average of eight per truss, 2¼ inches in diameter, round and regular. First fruit ripened August 21, 1951.

Fruits Dark Green when Young

BADSEY POTATO LEAF. (Raised, introduced and sent by Messrs. H. J. Speed & Sons, 47a Port Street, Evesham, Worcs.) **A.M.** September 4, 1951.—Plants vigorous, 22 inches, stout stems, large leaves. Fruit in forked trusses, an average of nine per truss, 2¼ inches in diameter, round, slightly tapering and corrugated. First fruit ripened August 17, 1951.

UNWIN'S HISTON EARLY. (Raised, introduced and sent by Messrs. W. J. Unwin Ltd., Histon, Cambs.) **A.M.** September 4, 1951.—Plants vigorous, 25 inches, stout stems, large dark green foliage. Fruit in simple trusses, an average of nine per truss, 2 inches in diameter, regular, slightly corrugated, good flavour. First fruit ripened August 18, 1951.

SUTTON'S EARLY MARKET. (Raised, introduced and sent by Messrs. Sutton & Sons Ltd., Reading, Berks.) **A.M.** September 4, 1951.—Plants vigorous, 3¼ feet, stems stout, foliage medium to large, dark green. Fruit in simple trusses, an average of ten per truss, 2½ inches in diameter, round and regular, thick fleshed; a heavy cropper. First fruit ripened August 17, 1951.

BUNTING'S No. 1 RESELECTED. (Raised, introduced and sent by Messrs. G. A. Bunting & Co., 2–8 Fenning Street, St. Thomas Street, London Bridge, S.E. 1.) **A.M.** September 4, 1951.—Plants vigorous, 2¾ feet, stems stout, medium-sized dark green foliage. Fruit in simple trusses, averaging eight per truss, 2¼ inches in diameter, round and regular, good flavour; a heavy cropper. First fruit ripened August 17, 1951.

CHAMPION. (Raised, introduced and sent by Messrs. Zwaan & de Wiljes, Scheemda, Holland.) **A.M.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, large dark green foliage. Fruit in simple trusses, average of nine per truss, 2¼ inches in diameter, round and regular, thick fleshed. First fruit ripened August 13, 1951.

BEST OF BONN ASCO. (Sent by Messrs. Chr. Olsen Ltd., Odense, Denmark.) **A.M.** September 4, 1951.—Plants fairly vigorous, 2¾ feet, medium-sized leaves. Fruit in simple trusses, 2¼ inches in diameter, round and regular, good flavour. First fruit ripened 1st August, 1951.

BEST OF BONN, TOFTOE IMPROVED. (Sent by the Danish Farmer's Seed Growing Association, Roskilde, Denmark.) **A.M.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, medium-sized foliage. Fruit in simple and branched trusses, averaging eight per truss, 2¼ inches in diameter, round and slightly corrugated, heavy cropping. First fruit ripened August 2, 1951.

HARFOLD. (Raised by Mr. C. Newman, Eydon Hall, Eydon, Rugby, introduced and sent by Messrs. J. Thorpe & Sons, Brackley, Northants.)

A.M. September 4, 1951.—Plants vigorous, 3 feet, stems stout, medium-sized dark green foliage. Fruit in simple and some branched trusses, average of nine per truss, 2½ inches in diameter, round and regular, good flavour. First fruit ripened August 11, 1951.

ECONOMY. (Raised and introduced by Messrs. van den Berg, sent by Messrs. Elsoms (Spalding) Ltd., Elsom House, Spalding, Lincs.) **A.M.** September 4, 1951.—Plants vigorous, 3 feet, large dark green foliage. Fruit in simple trusses, average of nine per truss, 2½ inches in diameter, round and corrugated, good flavour. First fruit ripened August 14, 1951.

OPEN AIR. (Raised, introduced and sent by Messrs. D. T. Brown & Co. Ltd., Premier Seed Warehouse, Poulton-le-Fylde, Lancs.) **A.M.** September 4, 1951.—Plants fairly vigorous, 2½ feet, medium-sized foliage. Fruit in simple trusses, average of nine per truss, 2½ inches in diameter, round and regular, good flavour. First fruit ripened August 15, 1951.

MARKET KING RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** September 4, 1951.—Plants vigorous, 3 feet, stems stout, leaves small and dark green. Fruit in simple trusses, averaging ten per truss, 2½ inches in diameter, round and regular, thick fleshed, good flavour. First fruit ripened August 16, 1951.

SUFFOLK EARLY. (Raised and sent by F. G. Clarey, Esq., Roselea, Stansfield, Clare, Suffolk.) **H.C.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, small light green leaves. Fruit in forked and branched trusses, averaging ten per truss, 2½ inches in diameter, flat and slightly corrugated, good flavour. First fruit ripened August 3, 1951.

UNWIN'S EARLY CLOCHE. (Raised, introduced and sent by Messrs. W. J. Unwin Ltd., Histon, Cambs.) **H.C.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, medium-sized dark green leaves. Fruit in simple trusses, averaging eight per truss, 2¼ inches in diameter, flat and slightly corrugated. First fruit ripened August 17, 1951.

EARLY DAWN. (Raised and sent by Messrs. Nutting & Sons Ltd., Merstham, Surrey.) **H.C.** September 4, 1951.—Plants vigorous, slender stems, medium-sized foliage. Fruit in simple and some branched trusses, averaging seven per truss, 2¼ inches in diameter, rather flattened and corrugated, thin fleshed, good flavour. First fruit ripened August 12, 1951.

HUNDREDFOLD RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson, Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, stout stems, medium-sized dark green foliage. Fruit on simple and branched trusses, 2 inches in diameter, round and regular, good flavour. First fruit ripened August 17, 1951.

HUNDREDFOLD, THORPE'S SELECTION. (Raised by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, London, W.C. 2, introduced and sent by Messrs. J. Thorpe & Sons, Brackley, Northants.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, stout stemmed, medium-size foliage. Fruit in simple and forked trusses, averaging eight per truss, 2¼ inches in diameter, round and regular, good flavour. First fruit ripened August 14, 1951.

IBETT'S SEEDLING. (Raised and sent by Mr. F. Fleetwood Paul, Meadowland, Curdridge, Southampton.) **H.C.** September 4, 1951.—Plants fairly vigorous, 2½ feet, slender stems, small light green foliage. Fruit in simple and forked trusses, average eight per truss, 2½ inches in diameter, round and regular. First fruit ripened August 29, 1951.

UNWIN'S HISTON IDEAL. (Introduced and sent by Messrs. W. J. Unwin Ltd., Histon, Cambs.) **H.C.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, medium-sized foliage. Fruit in simple and branched

trusses, averaging eight per truss, 2¼ inches in diameter, round and slightly corrugated, good flavour. First fruit ripened August 14, 1951.

ST. JAMES. (Raised by Mr. P. J. Mugeridge, introduced and sent by Messrs. H. Bell & Sons, 160 High Street, Rainham, Kent.) **H.C.** September 4, 1951.—Plants vigorous, stout stems, medium-sized foliage. Fruit in simple and forked trusses, averaging nine per truss, 2¼ inches in diameter, round and regular, good flavour. First fruit ripened August 18, 1951.

VICTORY. (Raised and introduced by Messrs. Clibrans Ltd., Altrincham, Cheshire, and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, stout stems, medium-sized light green foliage. Fruit in simple and branched trusses, averaging seven per truss, 2¼ inches in diameter, round and regular, flavour good. First fruit ripened August 17, 1951.

IMPROVED POTENTATE OUTCROSS. (Sent by Messrs. Clapham & Sons Ltd., 46 Chase Court Gardens, Enfield, Middlesex.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, medium-sized foliage. Fruit in simple and forked trusses, averaging eight per truss, 2¼ inches in diameter, round and regular, good flavour. First fruit ripened August 27, 1951.

POTENTATE, NUTTING'S SELECTION. (Sent by Messrs. Nutting & Sons. Ltd., Merstham, Surrey.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, medium dark green foliage. Fruit in simple trusses, averaging nine per truss, 2¼ inches in diameter, round and slightly corrugated. First fruit ripened August 29, 1951.

PLUMPTON KING IMPROVED. (Raised by Mr. G. C. H. Johnston, introduced by Messrs. A. L. Tozer Ltd., Cobham, Surrey, and sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **H.C.** September 4, 1951.—Plants vigorous, 3 feet, stout stems, medium, dark green foliage. Fruit in simple and forked trusses, averaging nine per truss, 2¼ inches in diameter, round and regular, good flavour. First fruit ripened August 19, 1951.

Fruit Yellow

ORANGE SUNRISE. (Raised by Mr. H. Chapman, introduced and sent by Messrs. Watkins & Simpson Ltd., 27 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** September 4, 1951.—Plants vigorous, 2½ feet, stout stems, dark green foliage. Fruit in simple trusses, averaging seven per truss, 2 inches in diameter, round and regular, sweet flavour. First fruit ripened August 17, 1951.

PLANTS TO WHICH AWARDS HAVE BEEN MADE IN 1951

Anagallis tenella 'Studland' A.M. July 10, 1951. A particularly fine pan of this variant of our native Bog Pimpernel was exhibited showing a myriad of pink flowers. The original seedling was found by Mr. W. K. Aslet at Studland, Dorset, in 1950, and was subsequently grown-on at Wisley.

The small, fleshy, almost circular leaves are alternately spaced along thin, creeping stems. Its graceful, narrow-campanulate flowers are pale-pink with a deep veination of Roseine Purple (H.C.C. 629/2). Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Astilbe glaberrima A.M. August 14, 1951. This late-flowering species is of easy culture and of particular merit as it is at its best when colour is often lacking in the rock garden. Further to this, from the cultural point of view, the exhibitor states that the specimen shown was grown "in a raised bed, fully exposed and by no means moist."

The plant is about a foot high with dark glossy foliage, which is hispid, deeply serrate and on red-stained, wiry stems. Above the foliage are branched, feathery racemes of small, cream-coloured flowers that make an attractive contrast to the pubescent, red-stained stems upon which they are borne. Exhibited by Messrs. W. E. Th. Ingwersen, Ltd., Birch Farm Nursery, Gravetye, East Grinstead, Sussex.

Begonia 'Aldwyth L. Berry' A.M. July 10, 1951. A very large double rich deep yellow tuberous-rooted variety of compact habit. The flowers are very handsome and of excellent shape. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Charmian' A.M. July 10, 1951. An exceptionally free-flowering rich rose-pink tuberous-rooted variety with large double flowers. It is a tall grower. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Frances Powell' A.M. July 10, 1951. A very free-flowering tuberous-rooted double variety with large deep rose-pink flowers of excellent form. It is said to be somewhat late-blooming in habit. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Ivorine' A.M. July 10, 1951. A very large deep cream tuberous-rooted double variety with flower centres of perfect rose-bud shape. It is very free flowering in habit. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Juliet' A.M. July 10, 1951. A very free-flowering tuberous-rooted variety with large double glowing salmon-pink flowers of perfect shape. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Ophelia' A.M. July 10, 1951. A tuberous-rooted variety with large double blush-pink flowers of perfect shape, creamy white at the centre changing to pink towards the edges of the petals. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Begonia 'Wayne Parker' A.M. July 10, 1951. A very free-flowering tuberous-rooted variety with large very pale blush double flowers of excellent shape prettily edged with a deeper shade of the same colour. Raised and exhibited by Messrs. Blackmore & Langdon, Bath.

Campanula barbata A.M. September 11, 1951. This is a plant of easy culture that will thrive in any good loam. The hairy, crenate leaves, often up to 7 inches long and 1 inch wide, form a flat, loose rosette. From this appears a stout, hispid stem bearing a panicle of large, urceolate flowers. These are 1 inch long and 1¼ inches across, Astor Violet (H.C.C. 38/1) in colour and singularly villous on the inside of the lobes. Exhibited by C. H. Hammer, Esq., The Old Rectory, Boreham, Essex.

Campanula caespitosa A.M. August 14, 1951. When flowers are

scarce in the rock garden the inclusion of a plant such as this is always an added attraction. Unfortunately it is rare in cultivation and the specimen shown was collected personally by Mr. W. E. Th. Ingwersen on a visit to the Dolomites in 1937.

On this little plant the leaves are spathulate and irregularly dentate at the base and linear on the flowering stems. Each delicate inflorescence is made up of about six or seven pendulous flowers borne singly on leafy peduncles. The corolla is bell-shaped with five distinct lobes and coloured a light shade of Violet (H.C.C. 36/2) with a darker, pronounced veination. Exhibited by Messrs. W. E. Th. Ingwersen, Ltd., Birch Farm Nursery, Gravetye, East Grinstead, Sussex.

Carnation 'Danesmead Crimson' F.C.C. July 31, 1951, as a market flower. A fully double variety with flowers of fine quality and substance, $3\frac{1}{8}$ inches in diameter, carried on stems 22 inches long. The petals broad, margins sharply serrated were Cardinal Red (H.C.C. 822), calyx strong. This perpetual-flowering variety received an **A.M.** on July 10, 1951. Raised and shown by F. Hicks, Esq., "Danesmead," Golden Hill, Hordle, Hants.

Border Carnation 'Downs Unique' A.M. July 10, 1951, for exhibition. Stems 16 inches long, strong and upright. Flowers of fine form and substance, petals broad. Flower diameter $3\frac{1}{4}$ inches, well formed with tuft of petals at centre; colour soft yellow brightly splashed scarlet, calyx strong. Shown by Messrs. Allwood Bros, Ltd., Haywards Heath, Sussex.

Border Carnation 'Pink Model' A.M. July 10, 1951, for exhibition. Stems 17 inches long, strong and upright. Flowers of excellent form and substance, petals flat and broad; diameter of flower $3\frac{1}{4}$ inches, well formed with tuft of petals in centre. Colour soft delicate camellia pink, calyx strong. Shown by Messrs. Allwood Bros., Ltd., Haywards Heath, Sussex.

Delphinium 'Ruffles' A.M. July 10, 1951, for exhibition. Fine spikes $2\frac{3}{4}$ feet long and 6 inches in diameter, tapering towards the top, flowers semi-double 3 inches diameter, pale mauve touched pale blue with small cream eye. Shown by Messrs. Blackmore & Langdon, Bath, Somerset.

Leucojum autumnale A.M. August 28, 1951. A completely hardy bulb which will thrive in any moist part of the rock garden.

The flowers, as the name denotes, appear in the early autumn coming up before the leaves, that in turn appear as flowering finishes. The inflorescence is usually of two, or occasionally three blooms on long drooping pedicels. The flower is nearly half an inch long, lightly frilled at the margins and a fine pure white colour with a pale, light crimson stain at the base. Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Limonium caesium A.M. July 31, 1951. A very rare endemic plant that grows on outcrops of gypsum rock at Ajauge, Murcia, Spain, and was introduced by Dwight Ripley, Esq., in 1934. It is hardy enough to have withstood 30° F. of frost in the alpine house, where it makes a most attractive flowering subject about 18 inches high for the summer months. It forms a perennial rootstock whose basal leaves are very

fleeting each season, the functions of foliage appearing to be performed by the much-branched stems, which are retained over the winter. These are surmounted in summer with large and graceful heads of typical statice-type flowers, whose colour is Amaranth Rose, (H.C.C. 530–530/1) and which last for a very long time. Exhibited by Messrs. W. E. Th. Ingwersen, Ltd., Birch Farm Nursery, Gravetye, East Grinstead, Sussex.

Magnolia grandiflora 'Goliath' F.C.C. August 28, 1951. This superior variety of the North American Bull Bay is a magnificent evergreen tree, differing from the more common type in its rounded and rather blunt-tipped glossy leaves and very large, fragrant white flowers, which are produced in succession until the first autumn frosts. It received the **A.M.** in 1931. Exhibited by Dr. Lane Roberts, Mill House, Tewin, Welwyn, Herts.

Mitchella repens A.M. July 10, 1951. The leaves of the sole representative of this small genus in N. America (there is one other in Japan) are opposite, slightly crenate and show a pronounced veining. The flowers are usually in pairs but may sometimes appear in fours in a terminal cluster. The long corolla is tubular with sharply reflexed lobes. These lobes are white, stained with red and may vary from the typical four to an occasional six. The interior of the flower is densely pubescent to the lips of the bearded lobes.

In the autumn a number of scarlet berries gives this free-growing carpeter additional merit as a garden plant. Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Nyssa sylvatica A.M. October 23, 1951. The Tupelo of the eastern U.S.A. is a tall, straight-stemmed deciduous tree with stout shoots bearing alternate oval or obovate, entire, thickish leaves 4 or 5 inches long and up to 3 inches wide. The flowers are insignificant, and the beauty of the tree lies in its autumnal colouring, which is developed most fully in specimens growing near water. In the specimen exhibited the leaves displayed many shades of orange-red, the original green lingering along the veins of some of them. Exhibited by Mr. W. J. Marchant, Keepers Hill Nursery, Stapehill, Wimborne.

Oxydendrum arboreum A.M. October 23, 1951. The Sorrel Tree, native of the eastern U.S.A., belongs to the family Ericaceae and thrives under the same conditions as Rhododendrons and Azaleas. It makes an erect tree up to 50 feet in height with oblong-elliptic, long-pointed and finely-toothed leaves up to 6 inches in length, which usually assume shades of crimson and scarlet before falling. The tree is also decorative when bearing its lax panicles of small white flowers in August. Exhibited by Mr. W. J. Marchant, Keepers Hill Nursery, Stapehill, Wimborne.

Pelargonium 'Bath's Carnival' A.M. May 1, 1951. A handsome and free-flowering "Show" variety for the cool greenhouse. The flowers measure 3 inches across and have Cherry (H.C.C. 722/3) lower petals lightly marked with a darker shade of the same colour (H.C.C. 722). The upper petals are deep cherry heavily blotched with dark ox-blood red. Introduced and exhibited by Messrs. R. H. Bath Ltd., The Floral Farms, Wisbech.

Sambucus canadensis maxima A.M. August 28, 1951. This variety of the American Elder is a shrub of extremely vigorous growth. It has stout, erect stems reaching a height of 10 or 12 feet and bearing leaves a foot or more in length made up of nine or more sharply-toothed oval leaflets. The white flowers are carried in round, convex umbels, sometimes as much as 18 inches across. Exhibited by Messrs. Geo. Jackman & Son, Woking Nurseries, Ltd., Woking.

Sedum Lampusae A.M. August 28, 1951. This is an interesting monocarpic plant which was collected by Dr. R. Seligman on a visit to Cyprus in 1949.

The tall spikes of flowers are 12–15 inches high. At the base of these are thick, succulent leaves of a light green colour stained with brown streaks, later maturing to a shade of red with crimson staining. To the top of the spike and clustered around the stem are numerous tightly-packed, axillary flowers. Each of these has five petals stained with red which gradually fades to duller shade as the plant develops. Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Sorbus poteriifolia A.M. September 25, 1951. A most attractive Mountain Ash of rather slow growth and fastigiate habit. It was raised from seed gathered by Lord Aberconway's collectors in China (McL. D.84). The leaf is composed of fifteen or seventeen elliptical, serrulate, dark green leaflets, the largest of which measures 1¼ inch by ½ inch. The flattish-globose berries, each about ⅓ inch high, match the Spiraea Red (o 25/1) of the Colour Chart, and they are carried in more or less pendent, corymbose clusters. Exhibited by The Commissioners of Crown Lands, The Great Park, Windsor, Berks.

Thymus longiflorus A.M. July 10, 1951. A large-flowered Thyme that was introduced by Messrs. Davis & Heywood in 1947.

The specimen exhibited was 7 inches high and as much across. At the end of each wiry stem was a terminal cluster of about eight large calyxes. These were coloured a varying shade of light pink and from them appeared small tubular flowers of a pink-purple shade with a white lip. The leaves were typical of the genus, being distinctly aromatic. Exhibited by Messrs. W. E. Th. Ingwersen, Ltd., Birch Farm Hardy Plant Nursery, East Grinstead, Sussex.

CHRYSANTHEMUMS

Chrysanthemum 'Amber Daydream' A.M. September 11, 1951, for exhibition. Double disbudded reflexed type with 40 per cent. of petals incurving. Flowers 6 inches diameter on strong stems 27 inches long. Petals broad and slightly quilled; outer florets Straw Yellow (H.C.C. 604/2), inner florets similar with a flush of Amber Yellow (H.C.C. 505/1), reverse creamy-gold. Shown by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.

Chrysanthemum 'Athol' A.M. September 18, 1951, for exhibition. Double disbudded reflexed type. Flowers 7 inches diameter on stems 20 inches long, florets long and quilled, with attractive foliage. Outer and inner florets near Peony Purple (H.C.C. 729) with a silvery pink reverse. Shown by Messrs. T. V. French Ltd., St. George Nurseries, Bromley, Kent.

Chrysanthemum 'Autumn Amber' A.M. September 25, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 7½ inches diameter on stout stems 20 inches long, florets long and quilled. Outer and inner florets near Buttercup Yellow (H.C.C. 5/1) with a gold reverse. Shown by Messrs. H. Shoesmith, Ltd., Woking, Surrey.

Chrysanthemum 'Brumus' A.M. September 18, 1951, for exhibition and market. Double disbudded incurved type, of good depth and firmness. Flowers 5 inches diameter on stem 23 inches long, florets long and flat with incurved margins. Outer florets white, inner florets white, tinged greenish cream. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Chatsworth' F.C.C. September 18, 1951, for exhibition and market. (**A.M.** 1950.) Double disbudded reflexed type. Flowers 5 inches diameter on stems 23 inches long, florets long, narrow and quilled. Outer florets Spanish Orange (H.C.C. 010), inner florets near Spanish Orange (H.C.C. 013) with a yellow reverse. Shown by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.

Chrysanthemum 'Delightful' A.M. August 28, 1951, for exhibition. Double disbudded reflexed type with 60 per cent. of petals incurving. Flowers 5¼ inches diameter on stems 22 inches long, in light primrose. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Chester.

Chrysanthemum 'Festival King' A.M. September 11, 1951, for exhibition. Double disbudded incurved type. Flowers large and deep, diameter 7 inches, on strong stems 23 inches long. Petals long and broad with incurved margins; outer and inner florets Burnt Orange (H.C.C. 014) with a flush of crimson and a gold reverse. Shown by Messrs. H. V. Cartwright, New Dove House Nursery, Hatch End, Middlesex.

Chrysanthemum 'Gilbert Merrick' A.M. September 25, 1951, for exhibition. Double disbudded reflexed type. Flowers 6½ inches diameter on thick stems 32 inches long, florets flat with margins incurving. Outer florets Canary Yellow (H.C.C. 2/2), inner florets deeper (H.C.C. 2/1) with a yellow reverse. Shown by Messrs. Keith Luxford, Ltd., Sawbridgeworth, Herts.

Chrysanthemum 'Golden McLeod' A.M. September 25, 1951, For exhibition. Double disbudded incurving type. Flowers 5¼ inches diameter on strong stems 24 inches long, florets broad and flat. Outer and inner florets Buttercup Yellow (H.C.C. 5/1) with a gold reverse. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Harold Park' F.C.C. August 28, 1951, for exhibition. (**A.M.** 1950.) Double disbudded variety, reflexed type with 60 per cent. of petals incurving and outer petals tending to incurve at the tips. Broad, solid and slightly channelled petals in brightest golden yellow. Diameter 5½ inches, stems 20 inches long, Shown by Messrs. H. Shoesmith Ltd., Mayford Nurseries, Westfield, Woking, Surrey.

Chrysanthemum 'Irene Price' A.M. September 18, 1951, for exhibition and market. Double disbudded incurved type. Flowers 7 inches diameter on stems 23 inches long, florets long and broad with

margins incurving. Outer and inner florets near Magenta Rose (H.C.C. 027/3) with a cream flushed pink reverse. Shown by A. Alexander, Esq., Lee Park, Gateacre, Liverpool.

Chrysanthemum 'Janice Shipley' A.M. August 28, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 6 inches diameter on strong stems 21 inches long, in rich reddish bronze with gold reverse. Shown by Mr. A. C. Shipley, Orchard Nurseries, Bromley, Kent.

Chrysanthemum 'John Cooper' A.M. September 18, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 7 inches diameter on stems 22 inches long, florets flat with incurved margins. Outer and inner florets near Saffron Yellow (H.C.C. 7/1) with a pale yellow reverse. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Moonlight' A.M. September 25, 1951, for exhibition. Double disbudded reflexed type. Flowers 6½ inches diameter, on strong stems 23 inches long, florets broad with margins incurving. Outer florets near Canary Yellow (H.C.C. 2/3), inner florets slightly deeper in shade with a cream reverse. Shown by Messrs. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Pamela James' A.M. September 25, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 5½ inches diameter on stout stems 19 inches in length, florets narrow and quilled. Outer florets Salmon (H.C.C. 412) flushed Carmine (H.C.C. 21/3), inner florets Salmon (H.C.C. 412) with a cream reverse. Shown by Messrs. H. Shoesmith, Ltd., Woking, Surrey.

Chrysanthemum 'Pink Daydream' A.M. August 28, 1951, for exhibition. Double disbudded reflexed type with 60 per cent. of petals incurving. Flowers 6½ inches diameter on stems 24½ inches long. A strong grower in light lilac pink. Shown by Messrs. J. & T. Johnson, Ltd., The Nurseries, Tibshelf, Derbyshire.

Chrysanthemum 'Rosette' A.M. September 25, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 6 inches diameter on slender stems 23 inches long, florets narrow and quilled. Outer and inner florets near Solferino Purple (H.C.C. 26/2) with a silvery-white reverse. Shown by Mr. J. R. Bell, Southdown Nurseries, Cross-in-Hand, Sussex.

Chrysanthemum 'Salamander' F.C.C. September 25, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 5½ inches diameter on strong stems 21 inches in length, florets long and quilled. Outer and inner florets burnt orange flushed Blood Red (H.C.C. 820) with a gold reverse. Shown by Messrs. H. Shoesmith, Ltd., Woking, Surrey.

Chrysanthemum 'Sheila Rose' A.M. September 18, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 6 inches diameter on stems 23 inches long, florets broad and partly quilled. Outer and inner florets near Solferino Purple (H.C.C. 26/2) with a silvery white reverse. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Shining Gold' A.M. September 18, 1951, for exhibition and market. Double disbudded incurved type. Flowers 5¾ inches diameter on stems 24 inches long, florets long and broad with margins incurving. Outer and inner florets Canary Yellow (H.C.C. 2/1) with similar reverse. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Silver Prince' A.M. September 25, 1951. For exhibition and market. Double disbudded incurved type. Flowers 6 inches diameter on strong stems 22 inches long, florets broad with margins incurving. Outer and inner florets Tyrian Rose (H.C.C. 243) with a silver reverse. Shown by Mr. W. B. Jackson, Brown Heath Nurseries, Waverton, Cheshire.

Chrysanthemum 'Skylon' A.M. September 11, 1951, for exhibition. Double disbudded incurved type. Flowers very deep, 6 inches diameter on strong stems 23 inches long. Petals broad and flat, the margins slightly incurving. Outer and inner florets Canary Yellow (H.C.C. 2/1). Shown by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.

Chrysanthemum 'Summer Snow' A.M. August 28, 1951, for exhibition and market. Double disbudded reflexed type with petals firm and regular. Flowers 6 inches diameter on strong stems 22 inches long, of good form in clear white. Messrs. H. Shoesmith, Ltd., Mayford Nurseries, Westfield, Woking, Surrey.

Chrysanthemum 'Sweet Grace' A.M. August 28, 1951, for exhibition. Double disbudded incurved type. Flowers 6 inches diameter on strong stems 26 inches long, in pure ivory white. Shown by Messrs. Greenyer Bros., Broadwater Green Nurseries, Worthing, Sussex.

Chrysanthemum 'Thomas Johnson' A.M. August 28, 1951, for exhibition. Double disbudded reflexed type in lilac pink. Flowers 7¼ inches diameter, good form, on stems 22 inches long. Shown by Messrs. J. & T. Johnson, The Nurseries, Tibshelf, Derbyshire.

Chrysanthemum 'Valetta' (formerly **'Valiant') A.M.** September 11, 1951, for exhibition. Double disbudded reflexed type with 40 per cent. of petals incurving. Flowers 6½ inches diameter on strong stems 24 inches long. Petals broad and quilled; outer and inner florets Burnt Orange (H.C.C. 014), with a gold reverse. Shown by Messrs. H. Shoesmith, Ltd., Mayford Nurseries, Westfield, Woking.

Chrysanthemum 'White Joy' A.M. September 25, 1951, for exhibition and market. Double disbudded reflexed type. Flowers 6 inches diameter on firm stems 25 inches long, florets broad with tips incurving. Outer florets pure white, inner florets pure white tinged cream. Shown by Mr. J. R. Bell, Southdown Nurseries, Cross-in-Hand, Sussex.

Chrysanthemum 'White Wings' A.M. August 28, 1951, for exhibition. Double disbudded reflexed type. Flowers large and flattened, 7½ inches diameter on stems 26 inches long. A solid ivory white. Shown by Messrs. J. &. T. Johnson, Ltd., The Nurseries, Tibshelf, Derbyshire.

FRUIT

Black Currant 'Laleham Beauty' A.M. September 25, 1951, for private garden use. Raised by P. H. Salter, Esq., 181 Staines Road, Laleham, Middlesex, and selected for the National Fruit Trials in 1948. Colours approximately the same time as 'Baldwin' but the berries hang until late September. Usually in single trusses of medium length, carrying an average of nine or ten berries. Pedicel long with basal berry held a little away from the base of the rachis. Skin thick and tough. Flavour sub-acid.

Pear 'Bristol Cross' A.M. October 9, 1951. Parentage 'Williams' Bon Chrétien' × 'Conference.' Raised by Mr. G. T. Spinks, of Long Ashton Research Station, and selected for the National Fruit Trials in 1934. Dessert. Season end of September to early October. Similar to 'Conference' in shape but of better appearance, being partly covered with fine golden russet which completely covers the eye end. Flesh white, smooth, fine, tender and juicy. Stalk rather short. Tree free growing; moderately upright to spreading, but there is evidence that it is incompatible with Quince and therefore needs double working. A reliable cropper.

Pear 'Gorham' A.M. September 25, 1951. Raised at the New York State Agricultural Experiment Station. Parentage 'Bartlett' × 'Josephine de Malines.' Planted at the National Fruit Trials in 1931. Dessert, ripening mid to end September. Fruit medium, pyriform to rather elongated; regular. Colour pale yellow practically covered with brownish golden russet and completely covered at apex. Flesh white, melting, with musky flavour, keeping up to 2 weeks. Stalk short, thick, ¼-inch in length. Tree moderately strong, fairly upright, spurring very freely and closely on main branches. A free and heavy cropper, possessing quality.

Plum 'Severn Cross' A.M. September 25, 1951. Parentage 'Coe's Golden Drop' × 'Giant Prune.' Raised by Mr. G. T. Spinks of Long Ashton Research Station, Bristol, and introduced by that Station in 1931. Accepted for trial in 1933. Dessert, ripening mid to late September. Fruit very large, a little unequal-sided, tapering to stalk end. Colour greenish yellow turning golden yellow with occasional pink flush. Skin medium. Flesh yellow, firm, very juicy and sweet. Stone partially clinging. Of good quality for a late free-cropping variety.

ORCHIDS

Brassolaeliocattleya 'Golden Dome' var. 'Chroma' F.C.C. October 9, 1951. The flower was of good form and substance, 6 inches in diameter. The sepals were deep golden-orange, the petals several tones paler with undulate margins. The labellum was deep purple veined with orange and very strongly frilled. The result of crossing *Blc.* 'Xanthia' with *Blc.* 'Golden Crown.' Raised and exhibited by Messrs. Charlesworth & Co., Ltd., Haywards Heath.

Burrageara 'Lyoth' var. 'Whatcroft Hall' A.M. September 11, 1951. This rare plant was bearing a spike consisting of four open flowers and six buds. The open blooms were each 3 inches in diameter, the sepals and petals being maroon slightly mottled and narrowly

margined with ivory. The labellum was similar but for the mottling which was rosy pink and all three were slightly frilled. The crest was yellow. The result of crossing *Charlesworthara nobilis* with *Odontoglossum* 'Felicia.' Raised by Messrs. Charlesworth & Co., Ltd., and exhibited by Dr. W. Stirling, Whatcroft Hall, near Northwich.

Cattleya 'Bow Bells' var. 'Canadian Welcome' A.M. November 20, 1951. The fragrant flower was of good form and substance, six inches in diameter, with white sepals, petals and labellum, the latter with a basal blotch of canary yellow. The petals and labellum were markedly fimbriate. The result of crossing *C.* 'Suzanne Hye' with *C.* 'Edithae' var. 'White Empress.' Raised and exhibited by Messrs. Black & Flory, Ltd., Slough.

Coelogyne 'Memoria Wm. Micholitz' A.M. May 22, 1951. A very interesting hybrid having the habit and general appearance of *C. Mooreana* Westonbirt var. but with sienna markings on the labellum derived from *C. Laurenceana*. There were three flowers on the spike, each 2½ inches in diameter. Exhibited by Messrs. Sanders (St. Albans), Ltd.

Cymbidium 'Clarissa' Stonehurst var. A.M. April 3, 1951. The arching spike carried eighteen flowers of good substance, 3½ inches in diameter, crimson-brown margined with pale amber. The labellum was white marked with crimson with a narrow crimson-brown margin. The result of crossing *C.* 'Carisbrook' with *C.* 'Rio Rita' var. 'Radiant.' Exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Cymbidium 'Dorchester' var. 'H. J. Woodhams' A.M. May 22, 1951. There were six flowers of good substance in the spike. The sepals and petals were ivory-white, faintly shaded with rosy-purple at the base. The labellum was frilled, attractively marked with ruby and shaded with rosy purple at the margins. The result of crossing *C. Alexanderi* (West.) with *C.* 'Tityus.' Exhibited by Messrs. Armstrong & Brown, Orchidhurst, Tunbridge Wells.

Cymbidium 'Islander' Exbury var. A.M. March 20, 1951. The plant bore a spike of nine cup-shaped white flowers delicately shaded with rose-pink. The labellum is similarly coloured but in addition spotted with crimson. The result of crossing *C.* 'Ceres' var. 'Radiant' with *C.* 'Rosanna' var. 'Pinkie.' Exhibited by E. de Rothschild, Esq., Exbury, Southampton.

Cymbidium 'Mayfair' Stonehurst var. F.C.C. April 3, 1951. The arching spike bore nine flowers, 3½ inches in diameter, of rosy purple margined with pale amber. The labellum also was amber, attractively blotched with crimson. The result of crossing *C.* 'Edzell' var. 'Sunrise' with *C.* 'Olympus' var. 'Rosy Queen.' Exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Cymbidium 'Miretta' var. 'Sydney' A.M. April 3, 1951. There were six flowers in the spike, of good substance, soft pea green in colour, veined with a deeper shade. The labellum was creamy-green. attractively mottled with crimson and flushed with rose-pink. The result of crossing *C.* 'Mirabel' with *C.* 'Claudette' var. 'Invicta.' Raised and exhibited by Messrs. McBean's Orchids Ltd., Cooksbridge. Sussex.

Cymbidium 'Remus' var. 'Sunset' A.M. March 20, 1951. The spike contained ten flowers of pale amber overlaid with garnet brown and a ruby-tinted labellum. The result of crossing *C.* 'Regulus' with *C.* 'Joyful.' Exhibited by H. W. B. Schroder, Esq., Dell Park, Englefield Green.

Cymbidium 'Rodaceia' var. 'Jean Conan Doyle' F.C.C. April 3, 1951. The eleven flowers were of exceptionally good substance, arranged in a close spike. Each was 4 inches in diameter, white faintly flushed with pale pink. The labellum was also white shaded with yellow and pink and sparingly spotted with crimson. The result of crossing *C.* 'Coningsbyanum' Brockhurst var. with *C.* 'Rhoda.' Exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Cypripedium 'Cyllene' Stonehurst var. A.M. December 4, 1951. The flower was 4½ inches in diameter, the dorsal sepal deep purple in the centre fading to a broad white margin. The petals and labellum were crimson-purple mottled with yellow. The result of crossing *C.* 'Atlantis' var. 'The Cardinal' with *C.* 'Edenbridge.' Exhibited by R. Strauss, Esq., Stonehurst, Sussex.

Cypripedium 'Evanshurst' A.M. December, 4, 1951. The flower was 4½ inches in diameter, the dorsal sepal white, marked with deep purple. The petals and labellum were deep crimson purple margined and mottled with yellow. The result of crossing *C.* 'W. N. Evans' var. 'Rose Queen' with *C.* 'Gayhurst.' Raised and exhibited by Messrs. Black & Flory, Ltd., Slough.

Cypripedium 'Festival of Britain' A.M. September 25, 1951. The flower was of good form and substance. The dorsal sepal and petals white faintly flushed ivory, the former 2 inches long and 2½ inches wide and the latter 2½ inches long and 1½ inch wide. The labellum was cream. The result of crossing *C.* 'Grace Darling' var. 'Forfarshire' with *C.* 'F. C. Puddle.' Exhibited by K. D. Morgenstern, Esq., 18 Lyttelton Road, London, N.2.

Cypripedium 'Golden Radiance' F.C.C. April 3, 1951. The plant bore two flowers of good substance, each 5 inches in diameter. The dorsal sepal was bright canary yellow with a broad white margin, the petals and labellum were also bright canary coloured. The result of crossing *C.* 'Eldorado' with *C.* 'Sunbeam.' Exhibited by Messrs. H. G. Alexander Ltd., Westonbirt, Tetbury, Glos.

Cypripedium 'Moonchild' F.C.C. October 23, 1951. The flower was of good form and substance, 5½ inches in diameter. The dorsal sepal was 2½ inches in diameter, and like the petals was ivory-white faintly spotted purple and veined lemon yellow. The labellum was shaded with greenish yellow on an ivory ground. The dorsal sepal and the petals were slightly frilled. The result of crossing *C.* 'Sumurun' with *C.* 'Phantasy.' Raised and exhibited by Messrs. H. G. Alexander Ltd., Westonbirt, Tetbury.

Denbrobium 'Louis Bleriot' var. 'Aalsmeer' A.M. November 6, 1951. There were six well-shaped flowers in the spike, each about 2 inches in diameter. The sepals and petals were deep purple and the labellum crimson purple. The result of crossing *D. Schroederianum* with *D. superbiens.* Exhibited by G. A. de Jong, Rijswijk, Holland.

BOOK NOTES

"The Rose in Britain." By N. P. Harvey. 181 pp. 23 colour plates. (Plant Protection Ltd.) 17*s.* 6*d.*

The author has spent a vast amount of time in the reading of most of the specialized books on the subject published in England and America (but has ignored the French and German) and has thus compiled a well-produced book on *The Rose in Britain*. He does not often rely on his own perhaps somewhat limited practical experience, but when he does so those parts are to me the more interesting, as for instance in the chapter on Fragrance and the last one where he reviews the Status of the Modern Rose and its possibilities for development in future breeding.

I am pleased to see that the author is free from that ultraconservatism of many Rose lovers who look askance at anything unusual, in colour, for instance, greys and lavenders, which undoubtedly have an elite beauty of their own, but I regret the lack of expression of first-hand experience elsewhere in the book which is indeed largely a compendium of other writers' views; not that that review of authoritative opinion would not be valuable to many who may not be familiar with the originals. The references, frankly and fully quoted, illustrate the care and extensive study with which the work has been prepared, they are, indeed, an excellent reference library.

A great deal of trouble appears to have been taken in making the colour plates, but to me many are disappointing. Said to be from direct colour photographs, any quality in the negatives has been sometimes woefully distorted in excessive and unnecessary masking and fine etching; and why the roundabout method of taking colour separation negatives, making carbro prints and then more colour separation negatives for the blocks? I am afraid the vaunted colour printing is by no means the equal of some that can be produced on the Continent. One plate at least is very beautiful the *R. foetida bicolor* (described as 'Austrian Copper') but 'Ena Harkness' and some others are unrecognizable.

Over 70 pages are devoted to a glossary and here the author writing from his own observation gives a description of many new and a few old varieties.

Competently written and pleasantly readable, with its many quotations and references, it may take its place on any gardener's bookshelf as well as that of the enthusiastic rosarian.

BERTRAM PARK

"Effective Flowering Shrubs." By Michael Haworth-Booth. 350 pp. Illus. (Collins.) 25*s.*

In this attractive book the author has succeeded in bringing together in seven chapters a wealth of information on a host of first-class flowering shrubs. So many are mentioned by name that not only the beginner but the more knowledgeable might well feel puzzled regarding those which are more effective than others. Guidance, however, is clearly given in the introduction regarding the points which a shrub must have to be worthy of inclusion. The reader is also provided with references to various works should fuller information be required about any specialized subject.

The first chapter deals briefly with cultural requirements, and attractive arrangements of flowering shrubs are suggested. The method of staking recommended appears rather crude now that patent tree ties are so easy to obtain.

Chapter 2 deals with propagation in a manner which the amateur should find of considerable help.

The remaining five chapters, however, constitute the real value of the book. Each deals with a specific period of flowering, and is prefaced by its own index. The headings are:—

Early Spring and April. May. June. July and August. Autumn and Winter.

It is, however, surprising to note the omission of *Hamamelis mollis* and *Chimonanthus fragrans* or one of its varieties, together with the fine forms of *Erica carnea* in the short chapter dealing with winter subjects.

There are 47 coloured photographs taken in the open by the author, and some of these reach a high standard which makes one wish for more. Reference is freely made to the Horticultural Colour Chart when describing coloured flowers in the text.

F. P. KNIGHT

"In Your Garden." By V. Sackville-West. 237 pp. Illus. (Michael Joseph Ltd.) 15*s.* net.

One of the pleasant things in recent years has been to turn on Sunday mornings from the too often depressing matter, which it is the duty of an important journal to report and discuss, to Miss Sackville-West's articles in the *Observer* on gardening. These have now been reprinted together with a short earlier book of hers, *Some Flowers*, long out of print. Week by week Miss Sackville-West has written with

point, understanding and humour of the cultivation, lore and history of hardy plants and of gardens to grow them in. She has also indicated many adventurous horticultural by-paths which the enterprising gardener will be tempted to explore.

If there are some departures from convention in the use of capitals in botanical names and the word "specie" sometimes appears where "species" is obviously intended, these very small slips can easily be corrected in the many future editions which we may hope for of this book, and weigh not at all against its author's long and wide practical gardening experience, general culture, and, if one may add without impertinence, great literary ability, which all combine to place it securely in the great tradition of books about gardening.

MORTON

"Thornton's Temple of Flora." Described by Geoffrey Grigson, with Bibliographical Notes by Handasyde Buchanan. viii + 20 pp. text. 12 colour and 24 black-and-white illus. (Collins.) 8 guineas, Special Edition 15 guineas.

If you have five or six hundred pounds to spare, you will probably prefer to purchase an original copy of Thornton's *Temple of Flora*; if, as is most likely, you have not, you will find a very agreeable substitute in the sumptuous edition which Messrs. Collins have produced at a very much lower figure. One regrets, of course, that the plates are reduced in size, and that only twelve of them are in colour; but how far more satisfactory to have a few plates reproduced really well, rather than the whole collection garbled! Moreover, the text is printed in a generous size of type, widely spaced, on paper that really *is* paper; the whole production, indeed, has a pre-war splendour which, in these difficult times, is truly a triumph. Let us take off our hats to the Dutch printers and engravers who have provided us with such a feast.

All those who are familiar with the *Temple* will have their favourite plates. Certain inclusions in the choice of colour plates were inevitable; but I know that I would gladly have exchanged "The Large Flowering Sensitive Plant," or even "The Dragon Arum," for "The Sacred Egyptian Bean"—surely one of the loveliest designs in the whole series. Nor do I think that I could have brought myself to reject all three Passion Flowers. How much the engravings depend for their beauty upon colour is only too apparent from an inspection of the black-and-white plates. Technically, these are perfectly adequate reproductions—but what pale ghosts of their true selves!

Those responsible for the text were obviously well advised to scrap Thornton's pompous and often irrelevant bombast—fascinating though it is—and to substitute an introduction and notes. Mr. Grigson has given us exactly as much information as we need about the book and its author, and those who know Mr. Grigson's other works will not need to be told that what he has written here is lucid, lively and accurate. Mr. Buchanan is responsible for the bibliographical notes and the catalogue of individual prints. The latter, as he acknowledges, is largely based on Dunthorne's almost unobtainable *Flower and Fruit Prints of the 18th and Early 19th Centuries;* but Mr. Buchanan, wisely, has very considerably simplified Dunthorne's elaborate critical notes. The erudite Mr. Stearn has provided a page of identifications which will be of value to the botanist.

WILFRID BLUNT

"Amateur Gardening for Pleasure and Profit." By C. C. Vyvyan. 128 pp. Illus. (Museum Press Ltd.) 6s. net.

The purpose of this little book is to suggest how the small garden may be made to help pay for itself. It will reap its reward says its preface "if it can help any reader to employ, in the course of time, two men instead of one . . ." an aspiration reminiscent of the famous miracle, as Farrer once called it, of making two blades of grass grow where one grew before, and even more difficult of achievement. Lady Vyvyan's book is intended for those with small gardens and owners who wish to mitigate the cost of running them will do well to turn to it for helpful suggestions.

MORTON

"The Daffodil." By M. Jefferson-Brown. 264 pp. Illus. (Faber and Faber.) 25s.

Michael Jefferson-Brown's new book begins with a Foreword written by Mr. Guy Wilson. Guy Wilson's eulogy of our new young writer is well merited. The book is well produced, well printed and carries six colour plates of high standard, thirty-three black-and-white plates, besides several sketch maps and diagrams. It is obvious that our young author has the "call of the Daffodil" running in his veins and this is confirmed by Mr. Guy Wilson who tells me he understands that his interest and enthusiasm is inherent and dates back to Jefferson-Brown's boyhood. The style in which this volume is written is most readable and indeed almost lyrical in places. As a writer his

phraseology is charming and his method of portrayal of the subject most admirable. Chapter 1 starts the book with a brief survey of some of the wild Daffodils, many of which are re-described in Chapter 14 on "Dwarf Narcissi for the Rock Garden." In the next chapter we read a summary tracing the historical development of the Daffodil, in which some of the earlier breeders are cited down to the leading ones of the present day; the author conjectures on the future trend, even to mentioning the possibility of a blue-toned Daffodil. "Daffodils for the Garden" is the title of Chapter 3; it is delightfully written, but, I feel, a trifle sketchy in its material. The title opened the gate to much more and I would have liked to see a list of recommended and proven garden varieties. In the next chapter, entitled "Secrets of Cultivation," there is useful instructional information, most valuable to the less experienced gardener, but some of it is repetition; it would perhaps have been better had this chapter been embodied with the previous one; I was delighted to read the condemnation of tying knots in Daffodil foliage after flowering—a horrid practice, enough to make Echo weep tears for Narcissus to be so treated by mortals!

Chapter 5 is headed "The Daffodil Indoors" in which culture is dealt with, including forcing and culture in bowls. Two lists of recommended varieties are given; in these lists I consider our author shows lack of breadth of experience—he should have collated the opinion of several growers before compiling this list. In the same chapter the Alpine House is dealt with: to my amazement I find eulogies on *Narcissus viridiflorus*, *serotinus*, etc. On page 70 appears a reference to "their intrinsic beauty," whereas on page 21 we read of "their poorly dressed flowers"; whilst these are interesting as botanical species and are valued for their rarity, they are practically non-existent commercially.

Chapter 6 deals with types of Daffodils and details of the present classification, whilst Chapters 7–13 cover the various divisions in detail, enumerating some of the older and newer varieties. As a superb garden variety, honoured at the Wisley trials, 'Scapa' should have mention, for as a garden plant it far outstrips 'Beersheba.' I must cross swords with the author in his assertion on page 96 that 'King Alfred' has abdicated in favour of 'Fortune'; whilst 'Fortune' was an outstanding introduction as a flower and more so as a parent, I think I would have a majority following if I stated that 'King Alfred' is likely to be a top-rank commercial flower for another twenty years.

Chapter 14, entitled "Dwarf Narcissi for the Rock Garden," is an excellent labour of love, much of which is based on the work of Dr. Fernandes. The descriptive matter in this chapter is splendid, the grouping is most helpful and it does much to clarify the muddle over the names of many of the wild species.

Chapter 15 tells of the story of large-scale production and embodies a list of a few good market varieties. The next chapter again deals with commercial Daffodils as related to small-scale production; here again we are given a list of recommendations, but I feel it is not a good selection.

Chapter 17 deals with Hybridization and Chapter 18 with Exhibiting and Indoor Decoration. Under the heading of "Pests and Diseases" Chapter 19 lists the ills to which our Narcissus friends may succumb. Michael Jefferson-Brown shows great imagination in giving a list of symptoms with diagnoses of the possible troubles, and this is likely to be most helpful to those who are not intimately acquainted with the troubles that can be met with in cultivation.

The book finishes with a most valuable list of specific names and the synonyms by which they are also known. Finally I would like to congratulate the author on a splendid first work which I hope will be the forerunner of further literary work on his part. All Daffodil enthusiasts should add this book to their libraries.

HERBERT R. BARR

"Iris Year Book, 1951." 139 pp. Illus. (Iris Society, c/o J. C. Fensome, c/o D.F.Y. Co., Rickmansworth Rd., Watford, Herts.)

The British Iris-enthusiast should need no introduction to the *Iris Year Book*, published by the Iris Society, for it always contains a variety of interesting articles. There are twenty-three in the 1951 number, besides obituary notices, reports of awards, etc.; they come from Syria, the United States, Germany, Canada and New Zealand as well as Great Britain. This *Year Book* does good service to botanists by making available information about obscure or little-known species; thus the present number contains a detailed account and illustration of *Iris Munzii* as well as of some Juno Irises of Lebanon and Syria.

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Iris unguicularis, a very pale form, was shown by Mr. E. B. Anderson. Mr. E. A. Bowles showed a fruit of *Diospyros Kaki*, the Japanese Persimmon, which had ripened on a tree out in the open at Myddelton House; he remarked that the skin of a persimmon was astringent and the pulp only should be eaten when bletted.

Abnormal Leaf of Chimonanthus.—Mr. E. A. Bowles showed an abnormal apically bifid leaf of *C. praecox grandiflorus*, with two equally developed main veins diverging from the petiole; this had evidently arisen from the fusion of two leaves at an early stage of growth.

History of Quamoclit Sloteri.—Mr. W. T. Stearn gave an account of the history of *Q. Sloteri* (see Minute of November 6, 1951). This was raised by Mr. Logan Sloter of Ohio who crossed *Q. pennata* and *Q. coccinea*, the hybrids being sterile until after eleven years he obtained a single seed. The plant from this next year produced 500 seeds. *Q. Sloteri* breeds true and does not cross back with either parent species. The chromosome numbers in Quamoclit given by Kagawa, Nohara, King and Bamford explain this behaviour. *Q. pennata* has $2n = 30$, *Q. coccinea* $2n = 28$ and the sterile hybrids $2n = 29$, but *Q. Sloteri* has $2n = 58$ (i.e. $30 + 28$). *Q. Sloteri* is thus an allopolyploid, comparable in origin to *Primula kewensis* and *Spartina Townsendii*.

Mahonia heterophylla.—Mr. N. K. Gould showed a leaf, with narrow leaflets, from a bush growing at Tunbridge Wells which he had identified as *Mahonia heterophylla*, stated by Rehder to be *M. Aquifolium* × *M. Fortunei*.

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. Secrett, C.B.E., F.L.S., V.M.H., in the Chair, and twelve other members present.

Exhibits

Group of Mushrooms from Mr. J. Gardner, Riddings Cottage, Harestone Hill, Caterham, Surrey.
Apple 'Sunset,' from The Director, The National Fruit Trials, Wisley.
Apple Seedling from C. S. Morris, Esq., 26 Manor Road, Potters Bar, Middlesex.
Two apple seedlings from Mr. H. Robinson, Victoria Nursery, Burbage, Hinckley, Leics.

FLORAL COMMITTEE A—Mr. G. W. Leak, V.M.H., in the Chair, and eighteen other members present.

Awards Recommended:

Gold Medal

To His Grace the Duke of Norfolk, E.M., K.G., G.C.V.O. (gr. Mr. L. Wiseman), Arundel Castle, for an exhibit of Begonias.

Silver-gilt Banksian Medal

To Mr. John R. Bell, Cross-in-Hand, for an exhibit of Chrysanthemums.
To Queenswood School (gr. Mr. G. H. Symonds), Hatfield, for an exhibit of Begonias and *Gesneria chromatella*.
To Messrs. A. G. Vinten, Ltd., Balcombe, for an exhibit of Chrysanthemums.
To Messrs. H. Woolman, Ltd., Birmingham, for an exhibit of Chrysanthemums.

Silver Flora Medal

To Messrs. Blackmore & Langdon, Bath, for an exhibit of Cyclamens.
To Messrs. Greenyer Bros. Ltd., Worthing, for an exhibit of Chrysanthemums.
To Messrs. Keith Luxford, Ltd., Sawbridgeworth, for an exhibit of Chrysanthemums.
To Messrs. Napiers Stepswater Nurseries, Ltd., Taunton, for an exhibit of Chrysanthemums.

Silver Banksian Medal

To Messrs. Edward Webb & Sons (Stourbridge) Ltd., Stourbridge, for an exhibit of Begonias and Cyclamens.
To Messrs. Edward Webb & Sons (Stourbridge) Ltd., Stourbridge, for an exhibit of Chrysanthemums.

Flora Medal

To Messrs. Wells, Ltd., Merstham, for an exhibit of Chrysanthemums.

Banksian Medal

To Mr. C. Newberry, Knebworth, for an exhibit of Anemones and Gentians.

FLORAL COMMITTEE B—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and fourteen other members present.

Awards recommended:

Silver-gilt Banksian Medal

To Mr. Frederick Street, Woking, for an exhibit of conifers.

Silver Flora Medal

To Messrs. Hillier & Sons, Winchester, for an exhibit of flowering, berried and foliage shrubs.
To Messrs F. Toynbee, Ltd., Barnham, for an exhibit of conifers and other shrubs.

Silver Banksian Medal

To Messrs. D. Stewart & Sons, Ltd., Ferndown, for an exhibit of conifers and other shrubs.
To Messrs. Wm. Wood & Son, Ltd., Taplow, for an exhibit of Pelargoniums and other aromatic foliage plants.

Flora Medal

To Messrs. Burkwood & Skipwith, Ltd., Kingston, for an exhibit of flowering, berried and foliage shrubs.

Banksian Medal

To Messrs. Kew Topiary Nursery, Ltd., Richmond, for an exhibit of clipped trees.

Other Exhibits

Mahonia lomariifolia, *Nerine Bowdenii* 'Pink Beauty,' *N. flexuosa alba*, exhibited by Dr. Maurice Amsler, Delmonden Manor, Hawkhurst.

ORCHID COMMITTEE—Mr. GURNEY WILSON, F.L.S., V.M.H., in the Chair, and fifteen other members present.

Awards recommended:

Silver Flora Medal

To Messrs. Sanders (St. Albans) Ltd., St. Albans, for an exhibit of Orchids.
To Messrs. Stuart Low Co. Ltd., Jarvis Brook, Sussex, for an exhibit of Orchids.

Award of Merit

To *Cattleya* 'Bow Bells' var. 'Canadian Welcome' (*C.* 'Suzanne Hye' × *C.* 'Edithae' var. 'White Empress') (votes 13 for, 0 against), exhibited by Messrs. Black & Flory, Ltd., Slough.
To *Cypripedium* 'Polpier' Stonehurst var. (*C.* 'Nancie Gamble' × *C.* 'Edenbridge') (votes 14 for, 0 against), exhibited by R. Strauss, Esq., Stonehurst, Sussex.
To *Odontoglossum* 'Crispiana' var. 'Whatcroft Hall' (*O. crispum* × *O.* 'Ascania'), (votes 13 for, 0 against), exhibited by Dr. W. Stirling, Whatcroft Hall, Northwich.

Cultural Commendation

To Messrs. Sanders (St. Albans) Ltd., for a fine plant of *Angraecum gracilipes* (votes 14 for, 0 against) exhibited by Messrs. Sanders (St. Albans) Ltd., St. Albans.

DECEMBER 4, 1951

SCIENTIFIC COMMITTEE—Mr. E. A. BOWLES, M.A., F.L.S., F.R.E.S., V.M.H., in the Chair, and four other members present.

Dahlia excelsa.—An inflorescence of *Dahlia excelsa* from a plant about 25 feet high in the University Botanic Garden, Cambridge, was exhibited by the Director. The leaves are bipinnate and hairy beneath, the drooping flower-heads 16 to 20 cm. across with 8 spreading mauve ray-florets each having a yellow spot at base.

Iris unguicularis varieties.—Two varieties of *Iris unguicularis*, one white-flowered, the other with dark blue-violet flowers having the falls 2·5 cm. broad, the standards 3 cm. broad, were exhibited by Mr. E. B. Anderson. The dark one was reputed to have been collected by Mrs. Barnard in Palestine.

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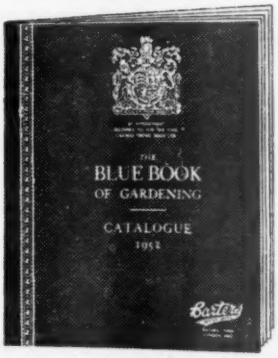

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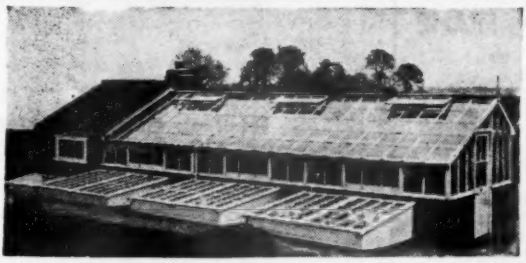

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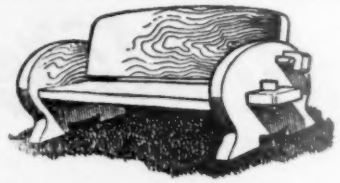

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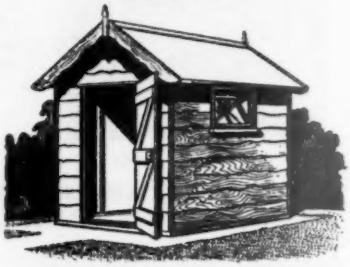

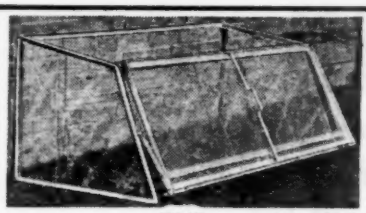

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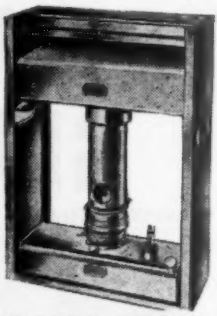

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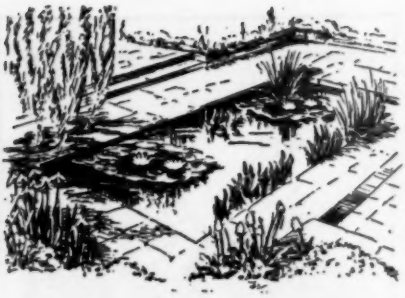

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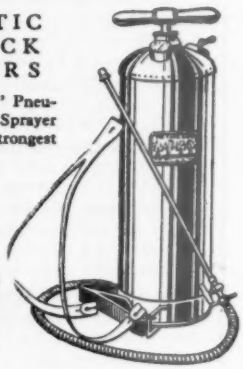

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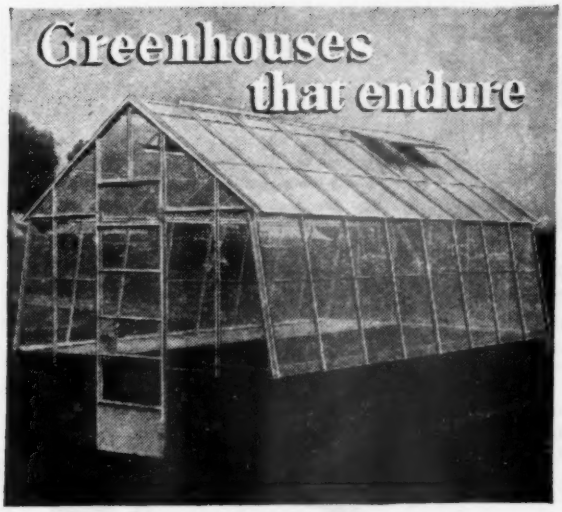

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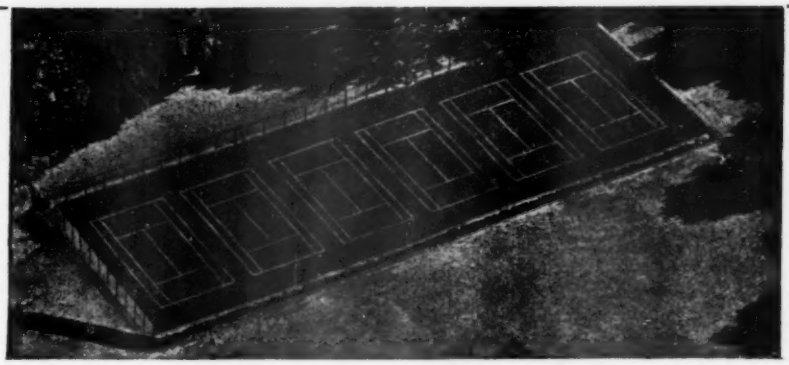

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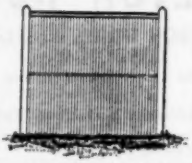
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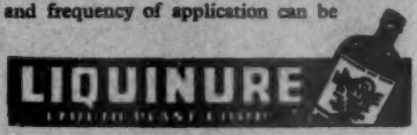

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